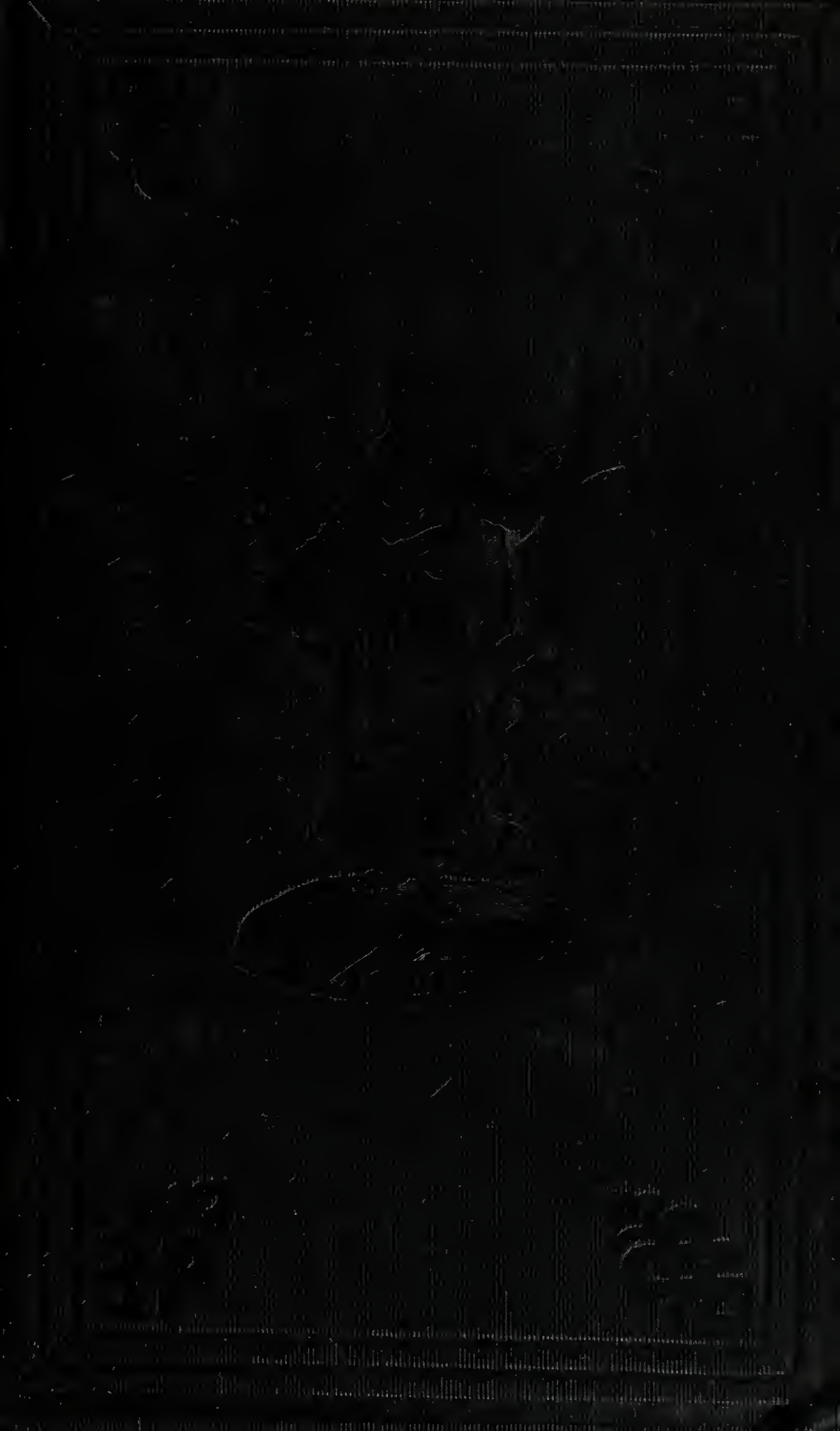

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HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES

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OF THE

MEDICAL SCIENCES.

JANUARY—JUNE

1849.

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43134

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HALF-YEARLY ABSTRACT

OF THE

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LATE PHYSICIAN TO THE SUFFOLK GENERAL HOSPITAL.

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VOL. IX.

JANUARY—JUNE 1849.

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LIST OF BRITISH AND FOREIGN PERIODICALS REFERRED TO IN THE "HALF-YEARLY ABSTRACT."

BRITISH.

British and Foreign Medico-Chirurgical Review.
Medico-Chirurgical Transactions.
Edinburgh Medical and Surgical Journal.
London and Edinburgh Monthly Journal.
London Journal of Medicine.
Journal of Psychological Medicine.
Dublin Quarterly Journal of the Medical Sciences.
Lancet.
Medical Gazette.
Provincial Medical Journal.
Medical Times.
Dublin Medical Press.
Bell's Pharmaceutical Journal.
Guy's Hospital Reports.
Chemical Gazette.
British Record of Obstetrical Medicine and Surgery.

AMERICAN.

American Journal of the Medical Sciences.
Philadelphia Medical Examiner.
New York Journal of Medicine.
Boston Medical and Surgical Journal.
Southern Medical and Surgical Journal.
British American Journ. of Med. Science.

FRENCH.

Annales de Chirurgie.
,, *d'Hygiène.*
,, *de Chimie et de Pharmacie.*
,, *des Maladies de la Peau.*
,, *Thérapeutique.*
Archives Générales de Médecine.
Bulletin des Académies.
Encyclographie Médicale.
,, *des Sciences Médicales.*
Journal des Connaissances Médico-Chirurgicales.
Gazette des Hôpitaux.
,, *Médicale.*
Journal de Chirurgie de M. Malgaigne.
Revue Médicale.
Journal de Chimie et de Pharmacie.

GERMAN.

Schmidt's Jahrbücher.
Zeitschrift für de Gesammte Medicin.
Muller's Archiv für Anatomie, &c.
Liebig's Annalen der Chemie und Pharmacie.
Canstatt's Jahresbericht.
Buchner's Repertorium.
Haller's Archives für Physiolog. und Patholog. Chemie.
Casper's Wochenschrift.
Poggendorf's Annalen.

N.B. Every periodical here specified is consulted *directly* by the Editor and his Coadjutors.

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ABSTRACT OF THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, & THERAPEUTICS.

SECT. I.—ZYMOTIC DISEASES.

Art. 1.—*Treatment of Erysipelas by Congelation.*

By James Arnott, m.d.

(*Medical Gazette*, March 2, 1849.)

[Dr. Arnott's endeavours to call the attention of the profession to the important effects which may be produced by the judicious employment of heat and cold, have been already commented upon in a former volume (VII, p. 253). In the present communication we lay before our readers one of the special applications of his mode of treatment, which, though strongly opposed to prevailing notions, is nevertheless, on the testimony of the cases adduced, deserving of at least an impartial investigation.]

The congelation or freezing of the animal textures produced by powerful frigorific mixtures, may be considered in its threefold character of a remedy, a prophylactic, and an anæsthetic or preventive of pain in surgical operations.

Congelation is a remedy of many diseases affecting the nervous and vascular systems. Of external inflammation it is a certain, speedy, safe, and agreeable remedy.

Certain, because wherever congelation can be produced, inflammation ceases. Every other remedy of inflammation, as bloodletting, antimony, mercury, minor degrees of cold, &c., are more doubtful in their effects.

Speedy, because congelation instantly arrests inflammation. The congestive state which sometimes succeeds, has nothing of the character of inflammation, and none of its consequences. Where the degree or duration of the refrigeration has been insufficient, or where the cause of the disease continues to operate, the inflammation will, after a considerable period, return; but a reapplication of the remedy will again immediately arrest it.

Safe, because in no instance, of hundreds in which it has been employed, has congelation been productive of any injury or untoward effect. Bloodletting often proves destructive, by prostrating the vital power required for reparation; and the other remedies have all their respective evils or dangers. Still, as every other potent remedy may be abused, so might congelation prove prejudicial, if too long continued, or if produced by frigorific mixtures of greater power than is required. In some cases it may be proper that congelation should be followed by the application of the "current apparatus," or the means which I have introduced for regulating local temperature with precision, in order to obviate reaction of the deeper tissues.

Agreeable, because it is speedy,—because it instantly benumbs the part, and relieves the pain accompanying inflammation. Excepting a slight tingling when the congelation commences, and for a few minutes after its cessation, this therapeutical agent causes no unpleasant sensation; such as the pain from the operations by which blood is extracted, or the fainting thus produced; the nausea and vomiting from antimony; the soreness of the mouth from mercury; the pain from scarification in phlegmonous erysipelas, &c.

The prophylatic virtue of congelation is the power which it possesses of preventing inflammation of parts which have been subjected to its influence. Wounds produced by surgical operations (as already stated in my paper in the 'Medical Gazette' of December 1st), have invariably appeared to heal more speedily after the application of congelation, than under the usual circumstances, and probably on account of the absence of any injurious degree of inflammation. Indeed, it was the observation of this effect of congelation in preventing inflammation, which led to its use as a remedy of the same condition; and conversely, had it been first used as a remedy, its preventive power would probably have been as soon discovered. This property of preventing injurious vascular excitement ought alone, and independently of its anæsthetic virtues, to render the use of congelation a preliminary to surgical operations, for even the smallest of these occasionally proves fatal in consequence of inflammation. A sad illustration of this has recently been afforded by the lamented death of a distinguished statesman, who fell a victim to the consequences of a very trifling operation performed to remedy an inconvenience so slight that it could scarcely be called disease.

The third medical property of congelation, is its power of preventing pain in surgical operations. Its excellence in this respect, compared with ether or chloroform, consists, first, in its power of producing local anæsthesia, while the consciousness of the patient remains undisturbed; and secondly, and especially, in its perfect safety. Since the publication of my former remarks on this subject, other *sudden* deaths from chloroform have been reported by the press: of *eventual* fatal consequences and other mischiefs there is no record.

The remedial powers of congelation in inflammation are proved by the following cases of erysipelas, in which it was employed:—

To the philosophic physician, acquainted with the history of the treatment of erysipelas, the announcement of a new remedy for it will probably at first appear only as another example of the common fallacy

of attributing the cure of a disease to the use of a medicine or remedial means, merely because the disease ceases after it has been administered. But there is this essential difference between the means now recommended, and the numerous and diversified expedients hitherto resorted to in erysipelas, that the former has in almost every instance in which it has been employed produced an immediate and very obvious beneficial effect; whereas the latter, it will be generally admitted, have just as frequently appeared to be inert or injurious, as to be efficient and useful.

Congelation, in respect to its use in erysipelas, is what is termed a rational remedy. Its analogies with other acknowledged remedies of inflammation would recommend its employment in this disease. Much of the danger of the erysipelas which affects the face and neck unquestionably proceeds from the extensive and severe inflammation of the skin; and to the suppression of this the efforts of physicians have been directed. Now, as cold is a remedy of inflammation of admitted efficacy, it is reasonable to suppose that by subjecting the diseased tissue, and this alone, to a short application of a much greater degree of cold than has hitherto been employed, a greater depressing or antiphlogistic power may be exerted. Again, as experience would show that bleeding when it produces syncope is a more certain mode of checking inflammation than when it does not produce that effect, so severe cold or congelation, which, like fainting, checks the circulation of blood through the part subjected to it, may likewise be useful for the same reason, and under the same circumstances. The morbid action of the blood-vessels being thus arrested for a time, the healthy circulation may, by the efforts of nature, be immediately afterwards restored. Such reasonings, however, are of little importance in comparison with the following facts:—

Case I.—Charlotte Shepherd, 10 years of age, living at 17, New Dorset street, became a patient of the Brighton Dispensary on the 15th of November, 1848. When I first saw her, two days afterwards, there was much swelling and redness of the face, and the eyes were closed. Considerable fever was present, and occasionally, delirium. She had been purged, and had taken antimonial and saline medicines without any mitigation of the symptoms. I applied a mass of pounded ice and salt, by means of a flat sponge, to each side of the face for about a minute, or until large patches of the skin had become white and hard, or, in other words, frozen. She did not complain of the application, but, on the contrary, appeared to obtain immediate relief. The salt was washed off the face, and the saline mixture ordered to be continued.

17th. The erysipelas has extended to the neck, and has returned to one side of the face and the ear. Increase of delirium and of the general febrile symptoms. The frigorific was again applied as before to the inflamed surface, and with the same immediate beneficial result. To take a laxative, and to continue the mixture.

18th. The fever and delirium subsided towards the evening of yesterday. The swelling has now quite left the face, and nearly the neck.

From this period the convalescence was rapid. Little medical

treatment, besides attention to diet, was deemed necessary during the remaining period of attendance.

A younger sister of this girl was attacked with erysipelas about a month afterwards, and died after a fortnight's illness. The fever was typhoid, and she gradually sunk from exhaustion. She was judiciously treated by moderate antiphlogistic remedies in the first, and by tonics and stimulants in the latter stage. My opinion was requested towards the end; but I did not think that congelation could then be of service. I now regret that it was not employed, as, without putting the patient to the least hazard, it would have removed or lessened one cause of asthenia, and diminished one source of suffering.

Case II.—W. Mansfield, aged 47, residing at No. 1, Leicester street, admitted a patient of the Dispensary, with erysipelas, on the 12th of January, 1849. Was seen at first by the house-surgeon, who prescribed a laxative, and a saline mixture containing antimony. When I took charge of the case on the 14th, I found him labouring under the disease in its severest form. He had been very delirious during the night, and continued to be excited, and at times incoherent. The face was much swelled and distorted, and the eyes closed. He complained of a very painful sense of burning in the inflamed parts. There was much fever. I applied pounded ice and salt in a piece of thin silk gauze to the whole of the inflamed surface, by shifting the bag from place to place, and with the effect of freezing large patches of the skin. Each application may have lasted nearly two minutes. There was a little smarting during and immediately after the congelation, but this was succeeded by complete relief. To continue the medicine already prescribed.

15th. The inflammation on the face hardly perceptible, but it has extended all round the neck, and the pain is severe. Passed a restless night, and the fever, which had subsided for about twelve hours, again rose to its former height. The frigorific was again repeated, and kept in contact with the different portions of the inflamed skin, until nearly the whole had become white and frozen. A mixture containing quinine to be substituted for the saline medicine.

16th. Little appearance of inflammation on any part of the face or neck, and no uneasiness. Slept better in the night, though occasionally incoherent.

The fever has decreased. To continue the tonic, and to take wine.

From this time, and under the same tonic remedies, he recovered rapidly.

[A third case is given, which for brevity's sake we omit.]

It will have been remarked, in perusing the details of the above cases, that the beneficial effects of congelation were immediate, and otherwise so well marked as to prevent any doubt of its efficiency. In this respect it is strikingly in contrast with the remedies hitherto employed in erysipelas. The practice of scarifying the inflamed surface, or puncturing it all over with a lancet, may frequently be of some service, notwithstanding the irritation which the wounds themselves, and their exposure to the air, must necessarily produce; but the painting of the part with lunar caustic, and the application of warm fomentations or cold lotions, I am disposed, from my own obser-

vation, to place, with respect to efficiency, in the same category with the old practice of the application of flour.

The absence of all injurious effect, or untoward consequence, from the congelations that were used, will also be equally obvious. The cerebral disturbance was uniformly relieved, and had the patient whose case is last related been of more advanced age, so that a solution of salt of about the temperature of zero might have been easily applied to the mouth and fauces, her disease, I have little doubt, would have had an earlier termination. A stronger application of congelation to the face, might, perhaps, have had a similar effect, by preventing the extension of the inflammation to the mucous surface.

The applications of severe cold were generally slight, and I am inclined to think that they would have been more efficacious had they been less so; that there might, at least, have been less necessity for repeating them. But there is, probably, no great difference, as respects the safety of the patient, between at once removing the inflammation and the susceptibility of its renewal, and checking it again and again on its approach; unless, indeed, the disposition to spread, just adverted to, be thus prevented. Some of the applications were milder than was desirable, on account of a defect in the means employed. If ice and salt be the frigorific resorted to, it is proper, where the skin is acutely inflamed, and consequently greater frigorific power is required, to employ it in the best or most effectual manner, as on the last occasion of its being applied in the third case. The greater expenditure of material, now that ice can be everywhere procured at trifling cost and in every season, is a point of no importance.

Although congelation may have no power in shortening the period of erysipelatous fever, or preventing it running through its several stages (and it certainly did not appear to have this power in the third case related), it will obviate the danger that would arise from the accompanying external or accessible inflammation. The danger from smallpox is, *cæteris paribus*, very much in proportion to the extent and degree of the inflammation of the skin, and particularly, in the opinion of Sydenham, of the skin of the face. It is this, probably, which makes the great distinction, in respect to danger, between the distinct and confluent species; and the same principle probably applies to erysipelas. A high and extensive inflammation must (as has likewise been remarked by Sydenham) necessarily increase the febrile action in this disease, or cause, as it were, a symptomatic fever in addition to that which is specific, and tend to exhaust the animal powers—tend, in fact, to produce or aggravate the asthenia which in erysipelas is usually the cause of death. Inflammation of other systems or organs, occurring in typhus or other febrile diseases, must for the same reason, and independently of any consequent disorganization, materially increase their danger; but in all such cases, whether the skin or internal organs be affected, there is, in addition, the irritation or injurious influence proceeding from the disturbance of the function of the inflamed part. It is, therefore, not only in erysipelatous fevers that congelation will be found a remedy of great importance in subduing local affections; it will probably be also very serviceable in other analogous diseases, accompanied with inflammation of superficial

or accessible parts. The skin, mouth, and throat, are obviously under its control; the windpipe and cerebral membranes are probably not beyond its reach. If the latter do not admit of congelation, they may have their temperature reduced to a much greater degree than has hitherto been attempted, and with great remedial advantage. The point to be aimed at is, perhaps, not so much congelation, as that degree of refrigeration which will *permanently* depress the nervous and vascular energies, or depress them without causing reaction. This must be far below the degree to which any application of water or ice will reduce the temperature of the part.

The notion that certain external inflammations are, even to their full existing amount, necessary safety valves or emunctories for the materies morbi, or are otherwise essential to the patient's safety, is now, happily, nearly exploded. Physicians have become well aware that hypothesis, or ill-founded theory, has formed the grand impediment to the progress of the art of healing; and in no instance has the superiority of observation to theory been more remarkable than in the modern treatment of erysipelas. Amongst other means of subduing the external inflammation, cold applications are now generally recommended; and in this improvement there is only a return to the practice of Celsus (Book v, cap. 26), and of his successors for many ages. In confirmation of the downfal of the doctrine of metastasis from cold, the published lectures on the practice of physic of two distinguished professors in the colleges of the London University, and the lectures of the present occupants of the chairs of surgery in the medical schools of St. Bartholomew's Hospital and University College, may be referred to. "There is no hazard," says Dr. Watson, speaking of the use of cold in erysipelas, "such as you may read of, of the inflammation being repelled from the surface, and driven in upon some vital organ." But, even granting that cold, as it has hitherto been usually applied, is dangerous in certain specific inflammations from its tendency to cause metastasis (and there is little authority in favour of its use in rheumatism or gout), it must be especially borne in mind that there is a wide difference between congelation and such applications of cold. At first it might appear to differ only in degree—in being greater than these, and consequently more dangerous; but, in truth, it is much less a cooling application. If a physician wished to heat the limb of a patient, he would surely keep it immersed for half an hour in warm water, in preference to applying a red-hot iron for a few seconds to the skin; and he would, in cooling a limb, make a similar distinction between continued cold and momentary freezing. Dangerous as plunging a limb affected with gout into cold water, according to Harvey's plan, may be, the same objection would not apply to the exactly limited and short application of congelation to the affected part; and the same observation would apply to the treatment of many varieties of rheumatism. Analogy, on the contrary, would point out such a remedy as one likely to be eminently useful in these complaints, in allaying suffering and preventing the disorganization of joints, while appropriate medicines were simultaneously exhibited as antidotes to, or evacuants of, the supposed materies morbi.

Art. 2.—*Clinical Lecture on Dropsy after Scarlet Fever.*

By R. B. Todd, M.D. F.R.S.

(*Medical Gazette*, Feb. 23, 1849.)

There is a remarkable form of dropsy of which, I think, no adequate explanation has as yet been offered. This is a *general dropsy*, affecting not only the whole of the subcutaneous areolar tissue, but very frequently the serous sacs, the pericardium, the peritoneum, and the pleura, often the ventricles of the brain, and even in some instances the areolar tissue of the lungs. The dropsy to which I refer is that which follows scarlet fever.

The *conditions* of this dropsy are—1st, a particular state of the *skin;* 2d, a particular state of the *kidney;* and 3d, I would add, a particular state of the *blood:* and I think you do not get the dropsy fully developed without the concurrence of all three conditions; if any one of them is absent, you may have a threatening of the dropsy, but the full result does not follow. Thus you may have the peculiar state of the blood, and the peculiar state of the kidney; but if the state of the skin be normal, the dropsy will be slight, or *nil.* Just so, when the peculiar conditions of the blood and of the skin are present, but the kidneys are healthy; and even if the particular state of the kidney and skin both existed, and under such circumstances you could scarcely have a healthy state of blood; yet, if the state of that fluid did not correspond with that which is favorable to dropsy, you would have other symptoms—head affections, for instance—but there would be no dropsy.

You will find a good illustration of the ordinary clinical history of this dropsy in the case of a little boy, Thomas Dunn, æt. 5. He seems to have had mild scarlatina, and swelling appears to have come on shortly after the commencement of the desquamative stage. When he came into the hospital he was suffering from universal dropsy, affecting even his peritoneum. His skin was puffed out everywhere, especially over the penis, scrotum, extremities, and face, and it had that peculiar white, semitransparent, waxy appearance, which is so characteristic of these cases. I think it very probable, too, that there was either an excess of sub-arachnoid fluid, or, what is more likely, slight effusion into the ventricles of the brain; for during the first two or three days after he came in, he was very drowsy and lethargic; and, no doubt, the impure state of his blood contributed much to the lethargic condition. His urine was deficient in quantity, smoky in colour, and it showed a great abundance of albumen on the application of the appropriate tests.

Now let us see in what way this case presented those three conditions, the concurrence of which I have just now stated to be necessary to the production of dropsy.

1. The *skin* was dry, rough, and harsh, and there would seem to be an irritated state of it; but this irritation was not extreme; and I think it would have been better if it had been made more so, as it would have enabled the patient to have thrown off more completely by cutaneous elimination the poison of the malady; for it is a known fact that the dropsy occurs in the mildest forms of scarlet fever, in

which there had been little or no eruption; but in those cases in which eruption had come out well, and that desquamation is consequently excessive, no trace of it is to be found.

2. The *kidney* was in a very analogous condition to that of the skin; as there has been a desquamative state of the one, so there has been of the other. When we examine the kidney in these cases (and now, thanks to recent researches, of which those of our friend Dr. Geo. Johnson are among the first, both in time and importance, we have a very exact knowledge of its precise anatomical condition in this form of disease,) we find it filled with epithelium, and the whole organ enlarged, and in a state of hyperæmia, as far as this great filling of the uriniferous tubes will permit it to be so. There is not only a large quantity of blood in the organ, from the undue attraction of blood to it by reason of its irritated state, but the blood is irregularly distributed in it. The principal anatomical change in the kidneys results from the development of an undue quantity of epithelium in the uriniferous tubes.

The accumulation of epithelium creates an unnatural distension of the tubes, and the small vessels which ramify upon their walls (forming the portal vessels of the kidney) become compressed. Thus the blood is thrown back on the Malpighian bodies, so that the vascular system becomes irregularly supplied, the Malpighian bodies being very full of blood, but the portal system almost empty. Hence but a small portion of urine is secreted, and that containing serum or blood in large quantity: and this imperfect elimination of water is negatively a further cause for the accumulation of epithelia in the uriniferous tubes, as there is less fluid to wash them out.

The congestion of the Malpighian bodies, when it exists to a certain amount, produces effusion of liquor sanguinis into the tubes; but when it exists to a still greater degree, it leads to rupture of the Malpighian vessels, and the escape of *all* the constituents of the blood: in the former case, the urine is merely albuminous; in the latter, in addition to the albumen, we find in it an abundance of blood-corpuscles and fibrinous casts of the tubes, from the fibrine having moulded itself to their walls in the process of coagulation. This is the state of the kidney, and accompanying it is always that peculiar smoky condition of the urine, very characteristic, into a particular description of which it is unnecessary for me at present to enter.

3. The *blood*. What is the condition of the blood? Whoever looks at our patient, and, indeed, at all patients labouring under this form of dropsy, will see at once that there is every indication of a great want of red particles, and a too watery condition of the blood. I know of no good analysis of the blood in the scarlet-fever dropsy, but I would venture to say that there must be a deficiency of albumen, and that the specific gravity of the serum must be below the natural standard: sometimes considerably so. I have not ascertained it in the present instance, from my unwillingness to impoverish my patient's blood, already too poor; but I feel assured that any future case that might admit of the examinatiou would confirm my supposition, and that the blood would be found deficient in its solid elements generally. Now this is a state that must be highly favorable to the filtration of

the liquor sanguinis through the walls of the capillaries, under particular circumstances.

These facts, I think, will lead us to form something like a theory of the foundation of this dropsy. What we have got to explain is this, that to-day a child may be going on very well, and to all appearance in a favorable convalescence, and in a few days afterwards may rapidly become universally œdematous, with effusions to a greater or less extent in the various serous cavities, accompanied by scanty urine, smoky in colour, and albuminous; in fact, exhibiting all the appearances I have already described. I think if you look to the three conditions which I just now mentioned, you will get it satisfactorily explained.

First. From some cause not easy of detection, but in some instances undoubtedly from exposure to cold, there is an arrest to the proper elimination of the scarlet-fever poison through the skin, its usual emunctory, and the ordinary excretions of water through that organ is checked; not obtaining complete egress there, the poison finds for itself another channel, and is thrown on the kidneys. Its passage through those organs produces great irritation in them, the effect of which is, that water is imperfectly eliminated, and thus the escape of water from the blood is prevented through its two ordinary channels —namely, the skin which is *an* emunctory of it, and the kidney, which is *the* emunctory of it *par excellence*.

Secondly. As a direct consequence of this obstruction to the escape of water through its two principal channels, a watery condition of the blood is induced. It is calculated that we get rid of three pints of water in a day, by the secretion of the kidneys, and by cutaneous perspiration, and certainly this is not too high an estimate. Now this water must be got rid of in some way or other, and when its usual channel of escape is cut off, it is very apt to permeate the parietes of the blood-vessels. But why do we find it particularly in the areolar tissue, and why in that of the skin more than any other part? It finds its way into the areolar tissue of the skin, in consequence of the determination of blood to the skin due to its state of irritation, for in order to reach the skin the blood must pass through the subcutaneous areolar tissue. It would be wrong, however, to suppose that the effusion was confined to the neighbourhood of the skin; we find it in the areolar tissue of the lungs, and in the serous cavities; in the former, because of the necessarily large flow of blood to the lungs; and in the latter situation, because of the great tenuity of the tissue of the serous membrane, which affords but little obstacle to the escape of the serous part of the blood.

Thirdly. All this is favoured by the impoverished state of the blood. If the scarlet-fever poison is not eliminated, it interferes with the proper nutrient changes which take place in the blood; and this is shown by the imperfect development of red particles. I think that the poison of scarlet fever interferes with their formation in the same way as that of rheumatism does, and indeed other poisons likewise, inorganic as well as animal—as for instance, lead. This impoverished state of the blood undoubtedly interferes with the proper rate and vigour of the capillary circulation. That attractive force which I

have already referred to, the capillary force, or *vis a fronte*, cannot be so vigorous when the blood is deficient in all, or nearly all its solid ingredients, as when the fluid is healthy. It is not improbable, likewise, that there may be some other special chemical condition of the blood. Magendie and Poiseuille found that the introduction of alkalis into the blood occasioned a great retardation of the circulation through the capillaries, and consequent dropsical effusion: what the precise condition of the blood is in scarlatina has yet to be shown; at present we can only conjecture that some such abnormal state of it does exist; that is to say that, besides containing too much water, and too little colouring matter, it contains some special chemical agent likewise, which interferes with its proper vital changes.

Such is my theory of the dropsy after scarlet fever. What may be the ultimate fate of it upon a larger induction of facts, I will not attempt to predict. I offer it to you now, as a convenient mode of connecting the various phenomena which accompany, and doubtless tend to the production of, the dropsy.

Treatment.—As you have in this disease a more or less irritated state both of the skin and kidneys, the first and chief indication for treatment is to allay that irritation. Now for this purpose I know no more valuable or efficient remedy than the warm bath: indeed, I would pronounce it *the* most valuable single remedy for this state of dropsy. You must use it frequently, bearing in mind, however, that both the disease and the remedy have a depressing tendency. You will be careful, therefore, not to use it oftener than your patients' strength will bear: most patients can bear it once a day for a few days: sometimes, however, you may give it twice in a day; but often you must not venture even upon the daily use of it. In cases where you apprehend the access of dropsy, you may often succeed in arresting it by the daily use of the warm bath during the period when desquamation is or ought to be taking place. The next most important remedy is purgatives, which by their action on the intestinal mucous membrane open a new emunctory for the elimination of water, and with it any poisonous ingredient dissolved or suspended in it. Jalap, calomel, scammony, the compound powder of jalap, singly, or variously combined, are very admissible for this purpose, or the saline purgatives. With these you may give some of the milder diuretics, which do not excite any direct irritative action on the kidneys, such as liquor ammon. acetatis, or bitartrate of potass. The last, in small doses, you will find extremely valuable. If, after a treatment of this kind pursued for several days, you find that the kidneys refuse to act properly, and that the urine is very smoky, take blood from the loins by leeches or cupping, to relieve the local congestion. I do not recommend you to do this early, during the more irritative stage of the renal affection, as you will find bloodletting then much less efficacious in diminishing congestion than at a later period. Take but little at a time, and rather repeat the bloodletting in small quantities, than take much at once. It very rarely happens, indeed, that patients labouring under this disease can spare much blood.

In pursuing this treatment, I pray of you to regard it not as antiphlogistic, but calmative and eliminatory, soothing cutaneous and

renal irritation, eliminating water by the bowels, the kidneys, and the skin. For whilst using these remedies you must always support your patient by nourishing food, and often you must stimulate: frequently you will find the most signal benefit derived from giving port wine. Do not, when you feel that your patient needs it, be deterred from giving stimulants by the fear of exciting fresh irritation of the kidneys. Your best guide as to the propriety of continuing stimulants or any other food, is the facility with which your patient *digests* them. If they create flatulence, gastric distress, pain, or any other symptom referable to the stomach, you must diminish the quantity or stop the supplies.

Sometimes in the course of this disease you have symptoms of head affection. These arise either from dropsy of the ventricles, or from poisoning of the brain by retained urea. Free counter-irritation immediately and extensively applied to the nucha or the scalp, is the best remedy; and generally speaking, bleeding, local or general, is inadmissible. Sinapisms, succeeded immediately by blisters, are most valuable remedies in these head affections.

The boy whose case has formed the text of this lecture was treated much in the way I have described. He came in on the 15th October, and I ordered him a daily warm bath and mild purgatives. The next day I made a slight alteration by giving him a more drastic purge, in the shape of a dose of Pulv. jalap comp. which carried off an abundance of watery stools. The next day, 18th, he passed a pint and a half of urine, and the dropsy had greatly diminished. The next day, he passed two quarts of urine; and from this time it is wonderful with what degree of rapidity the kidneys continued to secrete; this great diuresis is frequently to be noticed in this form of dropsy. On the 19th he passed 2½ quarts. Under these circumstances, it is not surprising that the dropsy almost entirely diminished. Still there remained a little smokiness of colour, indicating the escape of blood, and with the view of checking this, and remedying his anæmia, I have given him a little citrate of iron, under which treatment he has been rapidly improving, and is now nearly well.

This case affords a good example of the termination of this malady, as well as of its course. Dropsy after scarlet fever is by no means a disease of fatal tendency, more especially when the preceding fever has been treated mildly, and with due regard to preserving the powers of the patient. Furthermore, I should not prognosticate any peculiar liability of this, or other patients similarly affected, to renal disease hereafter. I know that some deservedly high authorities think otherwise; but it seems to me we need much more proof than has yet been offered, before we shall be justified in affirming that the state of kidney in scarlet dropsy predisposes either to the large fatty kidney of Bright, or to the chronic nephritic disease.

Art. 3.—*On Dropsy after Scarlatina.* By J. W. Tripe, Esq.

(*Medical Times*, October 21, 1848.)

[In the following extract from an interesting series of papers, Mr. Tripe acknowledges three varieties of scarlatinous dropsy. 1. That

in which the urine is not albuminous. 2. That in which it is albuminous, with subacute nephritis. 3. That in which the urine is albuminous, with acute nephritis; or, as he otherwise states, dropsy from debility, and dropsy from renal derangement or disorganization. Of these forms he proceeds to speak more in detail.]

The urine in one variety is non-albuminous, while in the others it is not only albuminous, but contains an increased quantity of epithelium, and in many cases blood-, mucus-, and pus-corpuscles, with cylinders. In the former variety recovery speedily occurs, whilst in the latter death frequently results either from the present attack, or subsequently from degeneration of the kidneys. In the simple form of dropsy the urine is occasionally albuminous, but usually it is not so, and contains an unusual quantity of lithates; in other respects it is commonly healthy. The presence of albumen is by no means indicative of disease of the kidney, but of congestion or irritation only. The treatment is simple, and consists chiefly of the free exhibition of purgatives, with warm baths, and the exhibition of tincture of the sesquichloride of iron.

The next variety depends on a more serious cause—viz. derangement of the circulation and acute irritation, or subacute inflammation of the secretory tubules of the kidney. The first symptoms are slight, such as trifling fever, loss of appetite, lassitude, and slight aching of the loins. After a few days the eyelids puff up, the face becomes œdematous, and next the extremities, surface, &c. The urine if not previously albuminous becomes so, and scanty, and of a higher specific gravity. A number of abnormal cells are also contained in it, mucus- and occasionally blood-corpuscles, and broken-up epithelial cells. Another kind of large cell, with indistinct nuclei, is also met with; there are also a few of the cylinders described by Simon. The salts of the urine are increased, especially the lithates, while the urea is diminished. The treatment consists in avoiding diuretics, in the use of antimonials and purgatives, and in restoring the functions of the skin as speedily as possible.

The most important, and fortunately the most rare, form of acute albuminous dropsy, is characterised by somewhat similar symptoms; indeed, the one form of disease graduates so insensibly into the other, that in some cases it is impossible to say to which form a case belongs. In well-marked instances the early symptoms are increased heat of skin, thirst, furred tongue, and quick pulse, great diminution or almost total suppression of urine, and great diminution of urea. After the febrile symptoms have existed for a day or two, the eyelids become œdematous, and the extremities and the serous cavities become in their turn involved in the effusion. The cavity which becomes dropsical varies in different epidemics. Occasionally the membranes lining their cavities are attacked with inflammatory disease, which is apt to creep on without being noticed.

If we examine the urine we shall invariably find it albuminous, with an unusual quantity of lithates and of the cells previously described. As the disease advances, the urine becomes still more diminished in quantity or totally suppressed, and the patient dies poisoned by urea. If the course of the disease is favorable, the

quantity of urine becomes increased, its colour is lighter, its specific gravity diminished, and the quantity of cells and albumen reduced. With these the other symptoms improve; the fever, thirst, and dropsy diminish; the colour returns to the face, and the patient appears to be perfectly restored.

The treatment of this variety of inflammatory dropsy should be at first antiphlogistic, consisting in the exhibition of antimony and opium, local depletion, milk diet, and especially in the use of hydragogue purgatives. When the inflammatory stage is somewhat abated, the use of tincture of the sesquichloride of iron is eminently useful, as the amount of blood and albumen in the urine diminish under its use, and frequently subside altogether.

Diuretics are injurious, as they increase the diseased action already existing. If we examine the urine of any patient to whom we have been giving diuretics for some time, we shall find that, in proportion to the quantity of urine, the epithelial cells are very much increased. The Goodsirs and others have proved beyond a doubt that all the secretions (as urine, bile) are formed by the agency of the cells which cover the membranous surfaces of the follicles, and of the ramifications of the excretory ducts of the secreting organs. These cells grow by abstracting from the blood certain particles which they appropriate to themselves. In the liver and kidney these substances are complementary to each other; that is to say, the substances abstracted by the two together make up the composition of the constituents of the blood. We thus see that during their nutrition these cells abstract from the blood certain substances, which, if allowed to remain, would prove injurious to the system; the azotized matters being removed by the renal, whilst the non-azotized are removed by the hepatic, cells.

On arriving at their full growth these cells burst, and pour their contents into the tubes or follicles which they line; at the same time they are themselves cast off, and replaced by the subjacent layer of younger cells. We thus see that secretion resolves itself into nutrition or growth. Why one set of cells should have the power to select from the blood certain substances only, we cannot tell, but it is undeniably true. We certainly can distinguish between one set of cells and another; thus the hepatic can be distinguished from the renal, &c.

Anything, therefore, which acts on the cells so as to cause increased action, must cause increased nutrition and an increased supply of blood to the organ. The cells must, therefore, under these circumstances, arrive at the full period of their existence at an earlier period than they otherwise would do, and must necessarily be cast off sooner than normal. It is, therefore, very evident that if, as I believe, that the virus of scarlatina produces this effect on the cells of the kidney, and thus induces the changes in the urine already described, that any means or medicine which aggravates this already increased action must necessarily prove highly injurious. I consider diuretics to be as irrational a mode of treating this variety of dropsy as attempting to put out a fire by adding to the quantity of fuel.

Art. 4.—*Treatment of Dropsy after Scarlet Fever.* By Dr. Scott Alison.

(*London Journal of Medicine*, March 1849.)

[After stating that his present experience of scarlet fever leads him to the conclusion that they will not bear depletory measures with the same safety as cases which occur in the provinces, Dr. Alison goes on to say:]—

For those cases of general dropsy in which the powers of life are considerable, in which the circulation is excited, and the kidneys are obviously congested, the perspiration of the skin is to be early secured, the bowels are to be purged, and blood is to be taken from the loins by cupping. The value of free evacuations from the alimentary canal was illustrated in a case in which severe vomiting and purging occurred, and in which, though the quantity of urine did not increase, the anasarca visibly declined.

When the disease of the kidney remains obstinate, and the strength will permit, a seton in the loins will form a most useful drain. Permanent fomentation of the loins with hot water will prove highly useful.

The examples of the disease which are associated with defective general power, whether from original defect of constitution, or the exhaustion of the eruptive disease, demand supporting measures. While the secretions are encouraged it will be necessary to give wine, vegetable tonics, and iron. Of the latter, the potassio-tartrate and the iodide are the best preparations. The employment of diuretics requires caution; the more stimulating of these being calculated, in active congestion of the kidney, to do much harm. When the renal affection has somewhat subsided, the author has found advantage from the use of spirits of nitre, iodide of potassium, and the alkaline diuretics.

Scarification of the integument, when the cellular tissue is much infiltrated, will often give relief. The act of sloughing will be rendered trifling by the application of a mild ointment to the neighbouring integument. The diet should be carefully regulated. All unnecessary consumption of azotized food should be avoided.

Art. 5.—*On Inunction with Lard in Scarlatina.*—[The following plan of treatment in scarlatina might meet with ridicule had it not the sanction of Mauthner, the founder of the children's hospital, at Vienna. This physician observes:]—

I owe to M. Schneeman an excellent method of treating scarlatina, and one from which I have derived great success: this is, inunction of the whole surface with lard. These unctions have never done harm (more than can be said of cold affusions); they may be employed in all classes of society; and in fact I am convinced that desquamation takes place more easily, and that there is less risk of consecutive anasarca, even though children are exposed to the air as early as the third day. The process also appears to prevent the spread of the disease in the family, if it be used as a prophylactic. I would, without hesitation, treat my own children thus, if they were attacked by this disease of

which I entertain so great a horror, while I should not have the courage to dash cold water upon them.

Revue Médico-Chirug., Jan. 1849.

Art. 6.—*Employment of Cupping-glasses to the Spine, in Intermittent Fever.*—M. Gondret submits the following method, which he states has never failed to cure intermittent fever:—Apply eight or ten middle-sized cupping-glasses on each side the spinal column, from the neck downwards, and let them remain on for about thirty or forty minutes, without scarification, or, in other words, dry cupping. The time for applying the cups is the beginning of the cold stage, or, if it is possible, a short time before its accession, say, a quarter of an hour; and this not only prevents the attack, but, at the same time, the hot fit and the sweating. In most cases, one application of the cups is sufficient to cure entirely an intermittent fever; however, in cases of long standing, it only modifies the time of the attack, and requires, for a complete cure, to be repeated three or four times.

In my own private practice, for these last twenty-seven years, I have never once met with a case of intermittent fever which has not given way to this simple treatment. The *vacuum* produced along the vertebral column, operates, I think, as a salutary derivative, which is easily understood, by considering the different anastomoses which exist between the vertebral arteries and those of the cerebral, such as the vertebral arteries, the circle of Willis, the bronchial, the cardiac, the œsophagian, &c. I cannot affirm that this mode of treatment would succeed in your climate: at all events, the experiment can easily be made.

As to the seat of the disease, it is impossible to affirm, with absolute certainty. However, from my own observation, I am inclined to think that it is sometimes located in one organ, sometimes in another, and the treatment is based on that belief; thus, when there is headache, giddiness, heat, and heaviness of the head, I apply cups to the back of the neck, and sometimes take away one ounce or an ounce and a half of blood, which immediately relieves; if there is cough, difficulty of breathing, palpitation, &c., I apply them between the shoulders; and draw two or three ounces of blood, and so on. By following this plan, I always find the symptoms disappear in a short time.

Encyclograp. Médicale.

SECT. II.—DISEASES OF THE NERVOUS SYSTEM.

Art. 7.—*On the Neck as a Medical Region, and on Paroxysmal Paralysis.* By Dr. Marshall Hall.

(*Lancet*, Feb. 17, 1849.)

[In a former volume (VII, p. 210) we have laid before our readers a theory of epilepsy advanced by this author, viz. that the first link in the chain of causation is compression of the veins of the neck by irregular action of the platysma and other cervical muscles. This

idea is further developed in the following remarks, which from the author's peculiar style, sets all attempts at condensation at defiance, and which we are, therefore, compelled to give in detail.]

I now proceed to consider this subject more especially in regard to certain characteristic affections of the nervous system, which I believe to be at once overlooked, and yet of great importance and prevalence.

We have all heard much of the *tendency* of blood to the head, a condition of the circulation which, in reality, scarcely exists; and we have scarcely heard of *impeded return* of blood from the head, an event of most frequent, nay, of daily occurrence. In reality, I believe the latter affection has been mistaken for the former.

There is no principle in physiology which could induce or explain tendency of blood to the head. M. Poisseuille has irrefragably shown that the power of the heart is equal in all the blood-vessels of equal size, and of equal distance from the heart. Nothing can influence this force except position, exercise, or muscular effort, or hypertrophy of the heart itself, which may augment the rapidity and force of the circulation; but then this augmentation of the rapidity of the circulation is general and diffused, like its original force, equally in all the vessels of equal size and form, and at equal distances from the heart.

Widely different is the course of impeded flow of the blood along the veins. An individual vein may be compressed and the flow of blood along its course, and its return from the organ in which it originates, is impeded; the capillary vessels, or, as I would term them, the methæmatous channels, are gorged and congested, and the arteries become rigid and throb.

This state of things is conceivable. But this is not all. It is of the most frequent and daily occurrence. And here again I beg to adduce a view of the subject which I believe to have been overlooked. *It is a newly discovered principle in pathology.*

We have only to watch the condition of the platysma-myoides, and of the external jugular vein, to observe that the contraction of that muscle is frequently spasmodic, and the dilatation of the vein, and of the veins which lead to it, a constant effect.

Spasmodic action of the muscle, then, may tend to the obstruction of the course of a vein, and to consequent congestion of its roots, and of the blood-channels, to which it serves as a drain.

I must be allowed to repeat, that this action of the muscles must be abnormal and spasmodic, for, as I have said, normal muscular action does not produce this effect. All the muscles of the neck, for example, may be summoned into normal action of the most energetic kind, as in carrying a heavy load on the head, without producing this effect. But let this action be abnormal, irregular, spasmodic, violent therefore, and without equipoise, and a very different result is observed; the subjacent vein may be compressed, and all the consequences of such compression may occur—viz., distension of its roots, and of the blood-channels, placed intermediately between them and the corresponding branches of arteries, which latter become rigid and throbbing.

Another pathological principle must be adduced in this place. Let any one observe the eyes, the countenance, the tongue, the neck, the hands, &c., in spasmodic disease. They will be satisfied that there

is no individual muscle, no series of muscles, which may not be excited into abnormal and violent, because spasmodic action. There is consequently no vein within the influence of such action which may not be compressed. As a further consequence, there is no organ which delivers up its blood to such veins, which may not be the seat of congestion, and, if I may so express myself, of the apoplectic state.

Now, in this region of the neck there are *four* veins of vast importance in this point of view; these are—

1. *The External* } *Jugulars;*
2. *The Internal* }
3. *The Vertebral;*
4. *The Subclavian.*

If the external jugular be compressed by the action of the platysma-myoides; the internal jugular, by that of the cleido-mastoid and the omo-hyoid muscles; the vertebral and the subclavian veins may be compressed, and the course of the blood in them impeded or arrested, by the spasmodic action of the scaleni, the subclavius, the pectoralis minor, &c.

To show the influence of abnormal contraction of the muscles on the subjacent or adjacent veins, I may mention the fact, that even the pulse of the artery at the wrist may be stopped by violent voluntary action of the pectorales minor, and other muscles similarly seated.

The compression of each of these veins induces its own peculiar effect.

The external jugular is frequently compressed by the action of the platysma-myoides, the effect of emotion; and blushing is the consequence; in other cases, the superficial veins of the neck, face, forehead, temples, &c., are seen to become tumid, the face to flush, and the temporal arteries to throb.

The internal jugular may be compressed without any obvious external sign, its roots being deeply seated. But the brain suffers, and there may be one or more of the varied symptoms of *cerebral* epilepsy —that is, momentary loss of consciousness, affection of the vision, or ringing in the ears.

If the vertebral vein be obstructed, there are some of the symptoms of affection of the medulla oblongata, or of *spinal* epilepsy—that is, laryngismus, strabismus, odaxismus, twisted neck, &c.

Lastly, when the subclavian is compressed, the hand of the patient becomes livid and cold. Such an event I have just witnessed, and, indeed, watched, in a little patient, conjointly with Mr. Hodding. The lividity and its accompanying coldness alternated with return of the natural colour and warmth from time to time, as the action of the subclavian (as I suppose) varied.

Some action of this kind also doubtless affects the mamma and the nipple, under the influence of what is called "the draught," and of the erectile excitement of the nipple on the pressure of the lips of the infant.

Other glands may be affected in a similar manner, excited, or arrested, by similar means, especially the salivary.

The subject of impeded venous circulation is not exhausted. It is physiological as well as pathological, though most frequently the latter,

and always traceable to emotion, or excitants of reflex action, and *the Spinal System.* Once more a new field of inquiry opens upon us.

It must be here observed, that compression of the subclavian vein may effect, not the brachial vein only, but, in a secondary manner, the vertebral and the jugulars; and it is to be particularly borne in mind, that the veins of this region are not affected *singly* in the manner I have described, but variously together.

I repeat that, in spite of anything which I may have written, or may write, respecting the action of individual muscles on individual veins in the neck, *it is not by any regular and physiological convulsion, but by irregular abnormal and violent* GROUPING *and* CONTRACTION *of the muscles of the neck, that compression of the veins of this region become variously affected with its consequences.*

I have now to evolve a fourth pathological principle in relation to this subject. The actions of the muscles to which I have adverted being one and all spasmodic or convulsive, the effects of this on the veins, and more remotely on the cerebrum, or on the medulla oblongata, are—*paroxysmal.* And this remark leads me to mention, in the most emphatic manner, that not only coma in the apoplectic state, but hemiplegia and partial paralysis, and mania, may, as well as epilepsy itself, be paroxysmal, be dependent on intra-vascular congestion, and exist entirely independently of extra-vascular, or other physical change. They may be evanescent, therefore, and so, far, very far, less grave than other forms of these diseases.

I feel that this subject, in all its relations to its causes, its rationale, its prognosis, is of vast importance in medical science and art.

Emotion and *causes of reflex action* may induce contraction of the muscles of the neck—*trachelismus.* This may compress the veins of the neck, and induce a condition which may be designated *phlebismus.* This leads to congestion of the intermediate blood-channels and the apoplectic state; and this, primarily or secondarily, to comatose, to paralytic, to maniacal, to epileptic affections, all having the one characteristic feature — that of paroxysmal and evanescent forms. I imagine that this view of the subject is equally original, important, and extensive. The events of each day's practice prove that these paroxysmal forms of diseases of the nervous system, not formerly viewed as paroxysmal, are extremely frequent. In fact, I believe a new ray of light is being shed on apoplexy, and even on paralysis and on mania, in their varied forms—in a word, on a *whole Class* of paroxysmal diseases.

I would here specially remark, or repeat, that impeded flow of blood along the external jugular is seen, first, in the fulness of this vessel itself; second, in that of the intermediate blood-channels; and third, in that of the temporal artery; and that the effects of compression of the subclavian are seen in the lividity and coldness of the hands and fingers; but the *arrière* connexions of the internal jugular and of the vertebral veins are more deeply seated, and impeded circulation in these vessels is manifested chiefly by *symptoms* — the symptoms of cerebral and of spinal epilepsy respectively.

I may now ask an important question—What are the exciting causes of trachelismus and its phenomena? And I answer, first, emotion;

and second, the excitants of reflex action—new subjects of investigation and study in the science and art of medicine.

I here conclude this little sketch, but not without one or two final practical remarks.

There is no degree or form of apoplexy or mania which may not be paroxysmal, and dependent on trachelismus. This is also true of paralysis. One patient suddenly and completely lost the power of articulation at one time, and of writing at another, to recover them after an interval. Another patient lost the power of articulation; a second, the use of the arm, and a third, the use of both arm and leg, yet only for a time.

In most of these cases, but not in all, the paralysis is not only paroxysmal, but more or less combined with spasm—that is, they are not cerebral only, but spinal.

The differences between these paroxysmal forms and the permanent forms of this class of disease, will now be perceived to be immense. They are especially more curable.

The objects forming this class are far more intimately allied than has been supposed; apoplexy, paralysis, mania, have alike resulted from an epileptic seizure. Minor degrees of the former have occurred from milder degrees of the latter; and even in the entire absence of epileptic symptoms. But to the physiologist there is a bond of union between them all. All may equally, and conjointly or separately, arise from emotion or the excitants of reflex action; from the occasional effects of these inducing contraction of the muscles of the neck, of this on the veins, of this again on the capillary circulation, of this on the condition of the cerebrum, and of the medulla oblongata —whence the Class of paroxysmal, cerebral, and spinal diseases.

[The subject of the preceding remarks is continued in a succeeding number of the same journal. After alluding to the terminology of certain medical words, and proposing that as the ending in *—itis* signifies an inflammatory disease, so the ending in *—ismus* might be employed to designate diseases not inflammatory, the author thus proceeds:]—

The term *trachelismus* may be used to express that paroxysmal affection of the neck, in which, the muscles acting inordinately, the neck is affected with opisthotonos, or becomes twisted, or otherwise contorted; whilst the subjacent veins are subjected to compression, and the blood flowing along them is arrested or impeded in its course —a condition which may be aptly termed *phlebismus*. The term phlebismus may be regarded as generic, and each kind of this affection may have its appropriate and specific designation; and whilst the term *sphagiasmus* denotes compression of the internal jugular vein, that of *rhachiasmus* may be used to denote that scarcely less important event of interrupted circulation in the rachidian or vertebral vein. The former will be henceforth associated with paroxysmal apoplexy, paralysis, mania, &c.; the latter with the epileptic seizure, and other convulsive and spasmodic affections, the cerebrum and the medulla oblongata being affected respectively.

Trachelismus and phlebismus constitute one of the most important events in *pathology*, and especially in the pathology of the nervous

system. Induced by mental emotion and excitants of reflex action, they are, in their turn, the fruitful source of *congestion* in the *cerebrum*, or in the *medulla oblongata*, and of *cerebral* and *spinal paroxysmal diseases*.

There is no *order*, no *degree*, in which the muscles of the neck may not act, and in which the veins of the neck may not be compressed; there is no form of cerebral and spinal paroxysmal derangement—from a momentary oblivium or delirium to coma or mania—from the slightest spasmodic or paralytic affection to epilepsy or hemiplegia—which may not take place as consequences of that compression. Having the limits of these maladies clearly placed before our eyes, we may readily imagine or comprehend the intermediate forms, mild and dire, and we are prepared for their immediate observation.

To trace these maladies from their faintest to their darkest shade—to trace them back to their causes, moral and physical, and onwards, to their dire effects on the intellect and on the limbs, of excitement or of stupor, of spasm or of paralysis, through trachelismus and phlebismus—is to engage in the investigation of one of the most novel, varied, and practically useful subjects in the domains of pathology. From mere sick-headache to paroxysmal apoplexy or epilepsy, this *Class* of diseases extends, occupying with its varied forms the lengthened interval.

A remarkable confirmation of these views is afforded by the phenomena presented by *Strangulation*. The moment the cord is tightened round the neck, *apoplectic* insensibility takes place; as a subsequent phenomenon, we have *epilepsy*—the tongue is protruded and bitten in some cases, and there are erection and seminal emission in others: *asphyxia* terminates the dreadful series of events. It will be plain, from what has been said, that we cannot concur with the eminent physician of Edinburgh, that "strangulation, when the neck is not dislocated, appears to be simply apoplexy."

In slighter degrees of strangulation there are slighter effects, but amongst these there is always insensibility. In one case, a youth, on the eve of an execution, impressed with the terror of the coming scene, wished to experience the sensation induced by strangulation; and having so arranged a cord on a horizontal pole (the upper bar of a stile crossing a village foot-path) that hung down loosely, he laid his neck gently upon it. Insensibility was produced, and the poor youth was found dead, having committed an undesigned suicide. The coroner for Middlesex has had frequent opportunities of observing the real suicide strangled in such a position that the slightest pain or irresolution might have led him to rescue himself had consciousness remained.

To these observations I may add the following interesting extract from Abercrombie, to show at once the importance and the obscurity of the subject previous to these inquiries. After having spoken of the effects of strangulation, and of the "numerous examples in which persons fall down suddenly in a state of perfect apoplexy, and very speedily recover under the appropriate treatment, without retaining a trace of so formidable a malady," he adds—

"The apoplectic attack, as it occurs in such examples as these,

must be supposed to depend upon a cause which acts simply upon the circulating system of the brain, producing there a derangement which takes place speedily, and is often almost as speedily removed. *What the precise nature of that derangement may be, is a point of the utmost difficulty to determine.*" Abercrombie's philosophic mind felt, in all its force, the want of some such principle as it is the object of these observations to set forth.

I may now repeat that the phenomenon of *blushing* is familiar to every one. Obviously the effect of emotion, I have suggested the contraction of the platysma myoides on the external jugular vein as the second link of the chain of causes and effects, and the impeded return of blood along this latter, as the third.

Let us imagine a similar condition of the *internal* jugular; there will be a state of *blushing*, in other words, of congestion of the cerebrum, with oblivium, stupor, or even apoplexy. Or let the vertebral vein be so affected, and a similar condition of *blushing* of the medulla oblongata will accrue, with varied spasmodic affections, such as strabismus, laryngismus, or even epilepsy. I have actually seen a state of recurrent *venous blushing* of the hand of an infant affected with convulsion.

If these veins be so affected, not singly but conjointly, it is obvious that a more complicated result will take place; and thus venous lividity of the face and hands is apt to be conjoined with the apoplectic and epileptic states, and these with each other.

If one part, or hemisphere, of the cerebrum be more affected than the other, we may witness a form of paralysis, which, as it usually ceases with the congestion, I have designated *paroxysmal.*

Or another *degree* or *locality* of the *blushing* of the cerebrum may lead to a paroxysm of mania.

A momentary unconsciousness—cerebral epilepsy—occurs from modes of strangulation such as I have described as constituting trachelismus. I will only *allude* to the peculiar effect said to be produced on the sexual system—spinal epilepsy—by slighter degrees of strangulation.

A slight degree of trachelismus leads to the feeling of "strangulation," or of "constriction," or of "tightness," or "pressure," or "fulness," about the neck; for these and other phrases are used by patients.

In inquiring into these feelings, we must avoid leading questions, and make the patient express himself. "Do you experience anything unusual about this part?" (referring to the front of the neck generally) is the only question I ever allow myself to ask. The reply to this is frequently of the most unexpected and interesting kind.

The subjects of trachelismus and phlebismus bring under our review the cases of paroxysmal apoplexy, paralysis, mania, and epilepsy, in all their shadowy and terrific forms. In their causes, their nature, their effects, and their treatment, they present to the physician a field of investigation, equally uncultivated hitherto, and prolific in results.

A chief cause is *emotion.* Such was the cause of the epileptic attack experienced by Henry Kirke White; and in general, I believe the mental agitation, the hopes and fears, attendant on the examinations

for honours at Cambridge, far more dangerous than the intellectual efforts previously made; and I would strongly and loudly urge on the Senate of that famed University (and others) some other, and better, and more continuous mode of judging, than the *one* fearful and dangerous trial now adopted.

A volume—and an instructive volume—might be written on the dire effects of the emotions and passions, in their varied kinds, in inducing trachelismus and phlebismus, and their results. Next should be investigated the effects of sexual excesses. And lastly, the effects of the excitants of spinal action, reflex and direct, should be traced from link to link through the fearful chain.

All these effects must be carefully distinguished from those of inflammation and of organic lesion, and the task of an accurate *Diagnosis* is not an easy one.

In my former paper, I observed, "It may be laid down as a principle, that there is no muscle—no set of muscles—in the neck, which may not become spasmodically contracted, singly or conjointly with others; and that there is no vein in this region which may not, under the influence of such contraction of muscles, become compressed, and the course of whose blood may not consequently become impeded." "As a further consequence, there is no organ which delivers up its blood to such vein, which may not be the seat of congestion, and, if I may so express myself, of the apoplectic state." As a still further consequence, I may now add, that there is no paroxysmal affection of the nervous system, and especially of its *cerebral* and its *spinal* portions, however severe, however apparently slight, which may not result from this series of causes and effects.

This statement may be expanded into the different modes and forms of diseases of the nervous system, in their cerebral and spinal portions. Hence we have stupor, oblivium, cerebral epilepsy, vertigo, headache, delirium, flashes of light, muscæ, flocci, dimness, amaurosis in every degree, tinnitus, and other noises, dullness, deafness; neuralgia and other morbid sensation, paralytic affections: hence we have epilepsy, and every kind, mode, and degree of spasmodic and convulsive affection.

So far the efforts of *trachelismus* are *paroxysmal;* they supervene on emotion or harass of mind, and on excited reflex action, and recede completely. But there is a limit to this complete recession. At length the recession is incomplete. The effects of the congestive state of the veins are more or less permanent, in the form, generally, of slight paralysis. What is the precise condition of the intermediate blood-channels? and of the minute arterial branches and venous roots? Do they yield and dilate, as we sometimes see minute ecchymoses on the face? Is there lesion of their intimate tissue? Is there effusion? Is there ramollissement of the adjacent cerebral or spinal tissue?

In a word, it has been admitted, from time immemorial, that mental agitation and passion, and deranged condition of the stomach, liver, bowels, &c., induce apoplectic attacks. I only attempt, for the first time, I believe, to set forth the *rationale* of this pathological phenomenon.

In doing this I establish a *Class* of *paroxysmal* diseases of the

nervous system, cerebral as well as spinal; apoplectic and paralytic as well as epileptic and convulsive. I endeavour to fix the attention of physicians, and of patients too, on this, the *curable* stage of these dire maladies, before, from being merely paroxysmal derangement, they pass into permanent lesion of tissue.

This is *living* pathology as contrasted with the results of morbid actions as usually detailed in books, which are *dead*. If we read over the titles of each of the nine *Letters* of M. Lallemand, we find but a list of the capita mortua of the real and living disease. But what actions lead to each of these? This is *the* one question, with those of the diagnosis and of the treatment, which interests the physician and the patient.

Inflammation and its causes; venous congestion and its causes; certain conditions of the vascular system or its contents—as anæmia, plethora, the effects of alcohol; the tuberculous diathesis, diabetes, albuminuria, a syphilitic taint, &c.; the seat of the disease in the membranes, in the substance of the cerebrum and spinal marrow; the character of the disease, especially as to its acute or chronic form, &c. I mention these circumstances to show how extensive a question that of the diagnosis is.

To return to the subject of trachelismus and of phlebismus, and of the paroxysmal affections of the nervous system, their effects, I must repeat that they exist in *two* stages; the first, that in which none but a functional change has taken place; the second, that in which physical lesion has supervened. The former case is the truly paroxysmal. These two conditions are coincident and commensurate with each other. As lesion supervenes, the symptomatic phenomena becomes more or less persistent; and here again the phenomena are proportionate to each other. In the severest form of this affection, physical lesion, perhaps rupture, may occur at once. It may be apoplexy or hemiplegia.

It would be interesting to institute a comparative estimate of the importance of inflammation and of the congestive state to which I have adverted, in regard to the nervous system. I believe the latter to be the most frequent cause of disease of the *substance* of the nervous centres, and its effects to be frequently mistaken for those of inflammation, which is the most frequent, but not the sole, cause of affection of the *membranes*, chiefly arachnitis. This statement must be left to future observation for development. The idea is big with conclusions of the deepest interest.

The specific effects of impeded venous circulation, whenever this occurs in external parts, are sure to be *two;*—first, dilatation, or the *varicose* state; and secondly, *effusion of serum.* We may suppose, until further investigation has confirmed or corrected this view, that similar events occur in the nervous centres, leading to irritation or lesion of their structure. Rupture, or softening of their substance, may follow if the proper remedies be neglected.

I now proceed to discuss briefly the subject of the treatment.

The causes—all mental emotion, agitation, passion, must be most carefully avoided; all sources of gastric and intestinal irritation must be removed.

I believe the most specific preventive to be systematic walking exercise, and especially a pedestrian tour.

I am convinced that I have seen the best effects from a light mercurial conjoined with ipecacuan and squill, and an aperient, taken so as gently to affect the mouth and act on *all* the secretions and excretions, the mercurial cachexia being prevented by air and exercise.

The head should be kept cool by a lotion, consisting of one part of alcohol and three of water, the feet guardedly warm and dry.

Sinapisms should be applied to the nape of the neck, extending to behind the ears. Dry cupping, and cupping with simple or crossed incisions, and with the detraction of the appropriate quantity of blood, have proved most useful.

But this is rather the treatment of the permanent effects of congestion. The most important treatment consists in avoiding the exciting causes of trachelismus, and its effects. It is obvious that, if we would save the brain, and save the intellect and limbs, we must deplete the veins!

We may now resume our subject, and observe that what shame does to the face, neck, and breast, through the contraction of the platysma myoides on the external jugular, other agitations and passions, and excitants of reflex action, effect on the cerebrum or medulla oblongata, or both, by the compression or obstruction of the internal jugular or vertebral. The former is *seen*, the other is *deduced* from the symptoms, consisting of paroxysmal, cerebral or spinal seizures. If repeated, the cerebral or spinal veins, or the intermediate blood channels between these and the arteries, become dilated or varicose, or yield an effusion or serum, whence persistent forms of the same diseases. Of these effects, the first should be subdued, the second should be averted, by timeous, that is, prompt, and effectual *cupping*.

Art. 8.—*Clinical Lecture on Paralysis of the Portio Dura.*

By R. B. Todd, M.D., F.R.S.

(*Medical Gazette*, Sept. 22, 1848.)

[After narrating a well-marked case of the above form of facial palsy, the lecturer thus proceeds:]—

The leading character of these cases of facial palsy is the inability to close the eyelids, from paralysis of the orbicularis palpebrarum muscle: this is the pathognomonic sign which determines the peculiar nature of the palsy, and distinguishes it from the more serious form of facial palsy which is dependent on disease of the brain and palsy of the fifth nerve. It is remarkable how seldom the seventh pair of nerves is affected by disease of the brain. I cannot say that I ever saw a single instance of paralysis of the orbicular muscle of the eyelids due distinctly to diseased brain; and I have only seen a few in which the power of the muscle appeared to be enfeebled from that cause. Thus we have a point favorable and consolatory to the patient afflicted with portio dura paralysis; namely, that the affection being seated in that nerve affords a strong probability that he is free from disease of the brain; for diseased brain would give rise to a different form of facial palsy, and very rarely, if ever, causes this.

You have only to examine this patient with care, and you will find that he has almost every sign which indieates that the paralysis has its seat in the portio dura nerve. He eannot elose his right eyelids; in making the attempt, however, he seems not to have lost the power altogether, for the upper lid is slightly depressed; yet if you put your finger on the orbieular musele you do not find the slightest eontraetion of it. How, then, is this slight depression of the upper lid produeed? Watch him elosely while he shuts the left eye and attempts to do the same with the right, and you will perceive that at the moment the left eye is closed, the right eyeball turns upwards and inwards to sueh an extent that the eornea is nearly or wholly eoneealed by the upper lid, and by this upward movement of the ball the upper lid is slightly depressed. The same upward movement of the eyeball takes plaee on the sound side at the moment of the forcible eontraetion of the orbicular muscle. It is a very curious instanee of an involuntary movement whieh cannot be eontrolled, aecompanying a forcible aetion of another kind; and no doubt has reference to the complete proteetion of the eyeball against all those sourees of injury whieh would oecasion the forcible elosure of the eyelids.

Sir Charles Bell, to whom we are so much indebted for our improved knowledge of the paralytic affections of the faee, dwelt mueh on this upward movement of the eyeball. He affirmed that it took plaee in sleep, and that during sleep the eyeball retained this position. I doubt mueh the eorrectness of this assertion. I have had many opportunities of satisfying myself that in perfeetly tranquil sleep the eyeball is direeted forwards, and seems suspended in the orbit, being equipoised among its museles. Close the eyelids slowly and without foree, and the eyeball remains quieseent,—contract the orbieular musele foreibly, instantly the eyeball turns upwards and inwards. When the orbieular muscle is made to eontraet strongly as a reflex action, as when you try to push any objeet into the eye, the upward movement takes plaee. But in ordinary winking you have none of it. This movement of the eyeball, then, aeeompanies only foreed contraetion of the orbicular musele of the eyeball.

If you will take the pains to watch persons sleeping, whenever you have the opportunity, you will find that in *sound* and *tranquil* sleep there is no indieation of aetive eontraetion of the orbicular musele: there are no wrinkles of the eyelid, and no depression of the brow, as when that musele is in strong eontraetion;—if, with the greatest eare and gentleness, you raise the upper lid, you will find the eyeball directed forwards, maintained in this position by the equilibrium of its muscles. Should your attempt to raise the lid give rise to a reflex action, you will eneounter a distinet resistanee from the eontraction of the orbicular musele, and the eyeball will be turned upwards and inwards, more or less foreibly in proportion to the foree of the reflex action. I think, therefore, we are justified in asserting, that in sound sleep the position of the eyeball is one of quieseenee, that it is maintained in that position by the passive contraetion of all its muscles, and that the eyelids are kept elosed by the passive eontraction of their orbicular muscle, and that there is no effort or influenee of the nervous system directed upon any of these muscles. It is only when

sleep is disturbed, when the mind is more or less active, as in dreaming, that you find active contraction of the orbicular muscle of the eyelid.

Our patient is unable to frown on the right side, while he does so distinctly on the left; neither can he move his scalp on the right side: the corrugator supercilii, and the frontal portion of the occipito-frontalis muscles, are paralysed—and hence these movements cannot be effected. The levatores alæ nasi, and the zygomatic muscles, are likewise paralysed on the right side, and therefore the right nostril is motionless, and the angle of the mouth hangs on that side. The orbicularis oris muscle is paralysed as to its right half: the patient is consequently unable to purse up his mouth, and if you ask him to whistle he will afford you indications of his inability to perform this as well as other actions. In making the attempt to whistle, you may perceive that he contracts the orbicular muscle of the mouth on the left, but not at all on the right, and so he is quite unable to get his lip into the position necessary for the production of sound; and, while trying to adapt his mouth for this purpose, he smiles or laughs, as is so often the case when you ask a person to whistle, and you are thus enabled to see how completely the action of the features is confined to the left side. The act of smiling or laughing is exaggerated on the left side, and the reason is because the left muscles have lost completely the resistance of those of the right side, which remain perfectly motionless, and which from disease have lost their tone, and have suffered much in their nutrition. For the same reason all the movements of the features which act in symmetry, and which at the same time counterbalance each other, are found to take place to an exaggerated extent on the healthy side. Hence, in smiling, laughing, and speaking, the face is drawn more or less to the right side: the distortion takes place on the healthy side, the paralysed side remaining unmoved. The popular notion, in cases of this kind is, that the disease is on the side to which the mouth is drawn. No medical man, however, can fall into this mistake if he be at all acquainted with the real condition of the patient.

Another muscle which is paralysed in this case, and in all cases of the same kind, is the buccinator. Hence the cheek hangs loose, and, as the patient speaks, it flaps to and fro. This extreme looseness of the cheek is not an early symptom of this form of paralysis; it manifests itself more and more, the longer the duration of the disease, and ultimately becomes the cause of symptoms very troublesome to the patient. It interferes not only with articulation, from its looseness and the flapping movement while the patient is speaking, but with mastication likewise. The palsied muscle allows the food to accumulate between the teeth and the jaw, and fails in its function of supplying the mill with its proper amount of material to be ground. After a little time, patients learn to remedy the defect of articulation which the paralytic condition of the buccinator muscle causes, by supporting the cheek with the hand; and a similar kind of support helps to remove the inconveniences of mastication.

You will observe that all the muscles paralysed in this affection are *superficial;* they are all muscles more or less concerned in the expres-

sion of the countenance. The deep-seated muscles are not affected—these are muscles of mastication—the only muscle paralysed, which is concerned in mastication, being the buccinator, which is, however, only accessory to that function, and is as much or more a muscle of expression.

And now we come to a most important question—what is the exact nature of this disease? is it a disease of certain muscles? or of a certain nerve or nerves? or is it an affection of the brain? Its one-sided character would denote its being a cerebral affection: it may, however, occur simultaneously on both sides, and I know of one instance of this kind. Experience, however, as I have already told you, assures us that it very rarely indeed accompanies cerebral disease; sometimes it occurs as the result of *intra-cranial* disease, but rarely, if ever, from lesion of the brain itself. What, then, is its nature? Sir C. Bell clearly pointed this out long ago, and to him we are especially indebted for our knowledge of the precise nature of the disease; so much so, that some designate the disease Bell's paralysis of the face. Not that I should recommend you to adopt this name; for I must say that I cannot regard it as any compliment to the great names of our profession, to attach them to any of the numerous ills to which our flesh is heir.

Sir C. Bell first pointed out the true nature of this palsy, because he was the first to unravel the intricacy of the nerves of the face. He showed that one nerve, and one nerve only, was at fault in this disease, and that it was strictly a local paralysis, due to a destruction of the nervous force in some part of the course of this nerve. The affected nerve is the portio dura of the seventh pair: the proper facial nerve which supplies all the muscles paralysed in this affection, and is the only nerve which supplies them. The fifth pair is not affected, because the muscles of mastication are free, and because the sensibility of the face remains intact. Sometimes the patient complains of slight pains in the face, which may probably be due to a slight affection of the filaments of the fifth, which anastomose with the portio dura.

There is, however, one muscle paralysed in this affection, which does receive a supply from the fifth—namely, the buccinator. This muscle has two motor nerves—a branch of the facial, and the long buccal nerve from the fifth: the former may be regarded as its nerve of expression; the latter as its nerve of mastication. How comes it, then, that if the first be paralysed, and the muscle ceases to act in expression, it likewise ceases to act in mastication? The two nerves are distinct; and the buccal nerve is one of considerable size, and to all appearance would seem perfectly adequate to the maintenance of a different action independent of the portio dura. It is not easy to find an explanation of this curious fact, which is equally true if the nerve first palsied be the fifth—as in cases of hemiplegia, in which the hanging of the cheek is due to paralysis of the buccal nerve, and of the buccinator muscle. The advocates of Dr. Hall's views would doubtless explain it by assigning to the facial nerve a specially spinal character, and to the fifth a cerebral. The palsy of the facial nerve would, according to these views, not only destroy the influence of the will over the muscle, but also cut off its supply of irritability. Without

going into other serious and fatal objections to this explanation, it is quite enough to state that it is inadequate to explain the complete palsy of the buccinator muscle when the fifth is the only nerve affected, as in common hemiplegia.

In some instances the velum of the palate participates in the paralysis; and when you look into the patient's throat, you find the uvula inclining away from the paralysed side, and the velum drawn to the sound side. It is probable that the portio dura exercises some influence on the muscles of the palate through the greater superficial petrosal nerve of Arnold, which arises from the knee-shaped ganglion that is formed upon the trunk of the portio dura in the aqueduct of Fallopius, and communicates with Meckel's ganglion, whence the palate-muscles derive their nerves. Possibly this influence may be more direct in some cases than in others.

As this is a purely local palsy, its causes are generally strictly local. Thus a common cause of it, and especially in strumous children, is *otitis*, and the subsequent caries of the petrous portion of the temporal bone. In such cases the paralysis is generally very complete: it is caused by inflammatory or destructive disease of the nerve in the Fallopian aqueduct, and it is often associated with a discharge from the ear, and with deafness. Injury to the trunk of the nerve may give rise to this form of palsy: hence it often follows surgical operations on the face, and accidental wounds in the parotid region; and formerly, before the true function of the facial nerve was known, when surgeons used to divide this nerve for *tic douloureux*, this form of paralysis used to be regularly manufactured by chirurgical skill.

A very common cause of this palsy is exposure to cold; as by exposure at an open window in a coach or railway carriage to a current of cold air. The case under our consideration was one of this description, the patient having been exposed the whole day to a cold atmosphere while in search of work. These are instances of what has been called "*peripheral paralysis*,"—cold acting directly on the peripheral ramifications of the nerve.

Sometimes you meet with cases which cannot be satisfactorily traced to exposure to cold: the patients, however, will be found to be out of health, and to have had pains about the face and neck for some days. It is probable that in all cases which have not a traumatic origin, or are not caused by disease of the petrous bone, there may be some constitutional fault which may show itself in this local malady, just as painful affections of sentient nerves — the fifth, for instance — are undoubtedly generally of constitutional origin.

Mr. Bowman tells me he has met with several cases of distinctly rheumatic paralysis of the portio dura among the patients at the Ophthalmic Hospital, Moorfields.

Very lately I have met with a well-marked case of palsy of the portio dura which was rheumatic in its origin. A man had severe rheumatism of some of the intercostal muscles of the left side. This got well, and then the muscles of the hip became affected, and he was completely lamed in consequence. As these were getting better, he found his face to become suddenly paralysed on one side, with all the symptoms of palsy of the portio dura.

Periodical neuralgic affections are, I believe, generally due to the determination of some poison to a particular nerve—as the paludal poison, or some matter generated in the system, gouty or rheumatic. There is no reason why such morbid matters should not affect a motor nerve as they affect a sensitive nerve, causing paralysis in the one case, and neuralgia in the other.

The cause of the palsy, in the case under our consideration, appears to have been the direct influence of cold. This view is confirmed by the pain which the patient suffered at first in the neighbourhood of the ear; as if the ear itself and the nerves about it were chilled, and some degree of inflammation excited in them in consequence.

The duration of this palsy varies considerably: it rarely, if ever, lasts a shorter time than ten days, whilst it very often extends to as many weeks: perhaps three or four weeks may be assigned as an average duration for the non-traumatic cases.

The prognosis in cases of this kind should always be founded upon the cause. When the paralysis has been caused by mechanical injury, your prognosis must generally be unfavorable, more especially if any distinct solution of continuity have taken place in the nerve. Nerve-substance is very slow of regeneration; and when it is reproduced, the new fibres do not adapt themselves with precision to the old ones, and so they form very imperfect conductors of the nervous force. But if the paralysis is due to cold or to some constitutional cause, it almost invariably gets well. But you should bear in mind that even in cases which are incurable by reason of the solution of continuity of the nerve, there is little in this form of paralysis tending to shorten life, or calculated to prove otherwise than inconvenient, by causing imperfection of speech, mastication, and vision, and sometimes of deglutition.

You will find it necessary to be guided by the cause of the palsy as to the course you will pursue in its treatment. If otitis be its cause, and the inflammation be of recent occurrence, it will be necessary for you to have recourse to the usual antiphlogistic measures for its suppression; and in such a case it may be desirable to carry the use of mercury to ptyalism. In the palsy from division of the nerve, all medical treatment is useless; and when the disease has been caused by cold, or has arisen from any constitutional cause, much medical interference is not requisite. If there be pain of the face, warm fomentations will prove useful. Sometimes a few leeches at the angle of the jaw, or over the parotid space, or behind the ear, may be tried, or a blister, or iodine paint. I cannot say that I have ever known clear and distinct benefit produced by any of these remedies in shortening the duration of the palsy.

In the use of internal remedies you must be guided by the diathesis, and the existing condition of your patient. Mild purgatives are generally useful, and sometimes alkalies and sudorifics, and I have seen decided benefit from the use of the iodide of potassium. I cannot name to you any remedy which will act specifically on the palsied nerve. Strychnine is of no use in such cases.

As to local remedies, I advise you to abstain from the use of them if possible. Blisters are open to this objection, that they sometimes

cause enlargement of the neighbouring glands of the neck, which, by their pressure, may increase the evil we wish to remove. Galvanism, used carefully, may be useful,—always remembering, in the use of it, to vary the direction of the current, and never to carry it on so long as to exhaust any small amount of nervous force which the nerve may be capable of generating.

Our patient has been treated chiefly by leeching and fomenting, and purging, in the first instance, and afterwards by the iodide of potassium. He has been completely relieved of pain, and his muscular power is beginning to return. I propose shortly to try the effects of galvanism with him.

He suffers from a very troublesome symptom, of constant occurrence in these cases, and which is very difficult to deal with—I mean irritation of the conjunctiva, occasioning free lachrymation and soreness of the eye. This is obviously due to the constant exposure of the eye, occasioned by the loss of the power of winking; and it can only be obviated by attention on the part of the patient to the protection of the eye, or by his wearing a shade to cover it.

Art. 9.—*Remarkable Spasmodic Affection of the Muscles supplied by the Portio Dura.* By Dr. Ranking.

(*Prov. Med. and Surg. Journal*, March 12, 1849.)

A lady, aged 65, consulted Dr. Ranking for an affection which had caused her very great distress, although not accompanied by any severe amount of pain. Her health had been generally good until twelve months back, when she became the subject of pain in the limbs, apparently of rheumatic origin. About the same time she first noticed the commencement of the affection for which she sought my advice, and which consists of a peculiar spasmodic twitching of all the superficial muscles in the left side of the face. This originated in the left genio-hyoid muscle, but had now engaged the orbicularis, the levator angulæ oris, the zygomatics, and in fact every muscle supplied by the portio dura, on the left side, and showed a disposition to extend to the other side. The twitchings occurred at intervals of about one minute, and lasted during twenty or thirty seconds, so that there was scarcely any abatement during the day, and these twitchings were so violent that articulation was impeded, and the patient was constrained to apply her hand to the cheek to restrain its motions. There was at the same time considerable lachrymation, but no pain, beyond a feeling of dragging from the abnormal muscular action.

Dr. Ranking examined the patient carefully to discover some explanation of this unusual symptom, but could find none. There was occasional pain in the head, and giddiness, but not more than is seen in ordinary gastro-hepatic derangement. There were no symptoms of paralysis, nor any affection of the special senses. He made out particularly that she had no noises or imperfection of hearing, and had never suffered from otorrhœa. The appetite was good, bowels regular, and in fact but for her distressing nervous affection, she would have considered herself well.

She was ordered quinine and steel, with belladonna frictions in front of the meatus auditorius, but the result was not known.

This case is placed on record from the belief that it is an affection of very unusual occurrence. The writer consulted such works of reference as were at his disposal, but could find only one similar case, which Dr. Graves has narrated (Clinical Medicine, 2d ed., vol. i, p. 571), as an instance of a disease hitherto undescribed. His case was also that of a female, past the meridian of life, but it appears to have been of longer duration, and had invaded both sides of the face. No account of the progress of the affection is recorded, nor is any explanation of the phenomena attempted.

Art. 10.—*Singular Spasmodic Action of the Lower Jaw.* By Dr. Spittal.

(*Dublin Medical Press*, March 21, 1849.)

The case in question was that of a man aged 88 years; he was nearly a pure negro, and had been in early life a weaver. He was first seen by Dr. Spittal on the 2d February, 1848, and laboured under bronchitis to a slight extent, together with other ailments usually accompanying approaching dissolution from old age, under which he seemed chiefly to sink. He died eight days subsequent to the above date. On visiting him, Dr. Spittal was struck with a remarkably loud intermittent rasping noise, not unlike the croaking of a young raven; and not knowing whence the sound proceeded, Dr. Spittal inquired if any such bird were in the room, when he was informed that it was caused by the patient grinding his teeth. This, it was said, he could not avoid when awake, unless he forcibly kept his teeth asunder. To avoid the fatigue of this voluntary effort, he was in the habit of interposing different substances between the teeth, sometimes the edge of the bedclothes; at other times small flat wedge-shaped portions of wood, or a small bone button depressed in its centre, which he placed between the canine teeth. The teeth were generally very much worn down and flattened on their surfaces. Dr. Spittal was informed that this habit had existed more or less for about sixteen years, and was said to have commenced with pains like those of rheumatism in the head. It was also stated, that a few years previous the patient had passed a large round worm, after which the grinding had diminished, but still continued. He had since been occasionally affected with abdominal uneasiness, but passed no more worms. His bowels were said to have been generally constipated. Dr. Spittal stated, that this was an affection of a peculiar nature, and such as he had never before met with or heard of. Dr. Alex. Wood, who had also known the patient, thought that his disease was simulated. Dr. Spittal did not consider that the circumstances of the case warranted such a conclusion, as the man was evidently labouring under considerable suffering, and died, as before stated, in a week after his being first seen. Dr. Seller remarked that there could be no doubt that a convulsive action of the muscles of the jaw occasionally took place, and stated that he had seen a girl, in whom this followed acu-

puncture in the chin. A loud, uneasy grinding of the teeth was the consequence; to remedy which, she used to insert the steel busk of her stays and pull the jaw forcibly down.

[This case is not unique; the curious affection described has been some time since alluded to, and cases narrated by Dr. Graves in his 'Clinical Lectures,' 2d edit. vol. i, p. 45. This, Dr. Spittal was not aware of when he read his own case.]

The affection is described by Dr. Graves as "*an insuperable desire, on the part of the patient, to grind his teeth*,"—originating in "a disagreeable, uneasy sensation in the teeth themselves, which is for the moment alleviated by forcibly grinding them together, but immediately returns when the patient ceases to perform this action, which is therefore continued, when the disease is confirmed, during the entire day. When asleep, the patients no longer grind their teeth, the grinding being in all cases the result of voluntary motion." The first case stated, is that of the Countess of Egmont, in whom the grinding was so confirmed as to impel her to indulge in it continually; for when she desisted, the uneasy sensation in the teeth became insupportable; and consequently she had to give up all society for several years before her death. The grinding was strong and forcible, and the teeth were worn down to the very sockets. Second, the Rev. Mr. B—— was driven from society by the same affection. The teeth were much ground down, and the incisors and canine, by being whetted on each other, acquired chisel-shaped edges, which sometimes cut the tongue like a knife.

The third case was that of a young clergyman, who was afflicted with tic douloureux of several branches of the fifth pair including the left dental nerve. In this instance, the teeth of the *left* side *only* were ground down. The disease ceased, after continuing two years.

The fourth case was that of Henry W——, aged 60, who, three years previous to the time of the Report, gradually got the habit of grinding his teeth, which he then did constantly while awake, and "*so loudly as to be heard in the next room.*" He is said to be unconscious of it, unless when spoken to. The teeth, in this instance, also were ground down.

The fifth case—a gentleman, aged 45, after a severe wetting, was attacked with paralysis of the right ride. He recovered, but, about a year after, observed in himself a tendency to grind his teeth, which gradually increased so as to prove a "*nuisance to himself and every one about him.*" He appeared to be relieved for six months by the actual cautery applied behind one ear, the use of mercury, and the extraction of one tooth. The affection returned, however, as bad as ever, when iron and other remedies were tried in vain. By pressing the tongue against the upper incisors, or by touching a certain point of one particular tooth, he could at any time arrest the grinding and suspend it as long as the pressure was continued. Dr. Graves is of opinion, that the irritable state of the dental nerves, which gives rise to this irresistible tendency to grind the teeth, depends chiefly on the existence of gout in the constitution.

Dr. Spittal trusted he had shown that such an affection as that under which his patient had laboured was really founded in nature. At

the same time he did not mean to deny the possibility of the man, who was poor, and probably had found sympathy for, and, perhaps, profit from his disease, having simulated the affection on fitting occasions. The circumstantial evidence, however, connected with the history of the last week of the man's existence, appeared altogether at variance with the idea that the affection was feigned on that occasion.

Art. 11.—*Case of Acute Cerebro-Spinal Arachnitis.*

By Robert Mac Donnell, m.d.

(*British American Journal of Medical Sciences.*)

[The details of the following interesting case are taken from a reprint obligingly sent to us by the author.]

Col. F—, aged 54, of uncommon strength and stature, being six feet five and half inches in height, first consulted the author twelve months previous to his present illness, for a tumour in the left scapular region, the size of a goose's egg. This was removed. His pulse was observed to be peculiar, being only 48, and irregular; but little importance was attached to this, as it had been noticed from the age of childhood. In July he again consulted Dr. Mac Donnell for renal calculus, which was treated by the usual means. His fatal illness commenced in the following way:

On the 24th of October he complained that, two days previously, he had bad rigor, with nausea and cramp. When seen, he was complaining of headache, loss of appetite, and thirst, but was cheerful. He was ordered aperients and diaphoretics, under which he appeared to be improving for three or four days.

On the 27th, at 10 a.m., the author found him in bed complaining of great pain across the loins, with some fever. The pulse 50, and extremely irregular. The urine was free now and throughout the illness, a point to which the author calls particular attention. He was ordered calomel, James's powder, and nitre, of each two grains.

At four o'clock he appeared altered, having refused his medicine, and became silent, lying on his side, and moaning when moved. His replies were short and surly, and when the author attempted to feel his pulse, he observed, *that the least touch induced severe pain, and retraction of the limb.* This was first thought to be only a movement of impatience, but it was subsequently ascertained *that the least touch in any part of the body gave intense pain*, and that *the suffering was augmented by increase of pressure.* It was also seen that even the touch of a drop of water on the skin produced the same effects. That the convulsive retractions of the limbs were accompanied by excruciating pain was shown, not only by the patient's moans, but by the agonizing expression of countenance while touch was continued, and the perfect calm which followed the removal of the hand.

In consultation, it was determined to counter-irritate the whole length of the spine, and calomel, in five-grain doses, was exhibited every half hour, by blowing it into the mouth through a quill, every contact with the lips producing spasmodic efforts at deglutition, like those of hydrophobia.

[It is to be regretted that no positive information is given as to the

probability of the patient having been bitten by a rabid animal, for, as will be seen more particularly by what follows, there was a close resemblance to the symptoms of true hydrophobia.]

Mercurial ointment was rubbed into the groins and axillæ, and the blistered surface was dressed with the same. By watching for the relaxation of the muscles of the jaw, allowing of the opening of the mouth, we succeeded in introducing the calomel and a small quantity of brandy and water, at appointed times.

The exalted sensibility was not confined merely to the nerves of touch, for when ammonia was kept near the nose, or when a gleam of light was suddenly thrown upon the eyes, or when he was spoken to in a loud voice, the same spasmodic twitching of the whole frame took place, and the same expressions of anguish were uttered. There was no paralysis of the upper or lower extremities, nor were there any convulsive movements of these limbs; on the contrary, he appeared to have complete control over them, for on one occasion he turned on his side, took a chamber utensil, passed water into it, and then replaced it on a chair near the head of his bed. He occasionally made attempts to get out of bed, but to the amazement of us all, his efforts were most easily restrained. The patient became gradually more and more feeble, and died exhausted.

The *post-mortem* examination revealed some congestion of the cerebral sinuses. The dura mater was healthy; the arachnoid was opaque, and between it and the surface of the brain there was extensive effusion of gelatinous lymph. This effusion was more consistent, and the membrane more opaque on the anterior lobes and at the base of the brain. The ventricles were occupied by a quantity of serum, and in some points, the opposed surfaces of arachnoid were glued together by recent adhesions, a condition that was well marked at the junction of the anterior lobes of the hemispheres in front of the corpus callosum. In other respects, the structure of the brain and of the cerebellum was quite free from disease. The upper portion of the spinal arachnoid was very opaque, but the opacity throughout the remainder of its extent was not so well marked, but its cavity was filled with a great quantity of serum, which flowed out abundantly when the body was raised, so as to make the occiput the more depending portion; and it was likewise observed to well up from any accidental puncture of the theca, made whilst taking out the spinal marrow. Both in the brain and in the spinal cord *the pia mater was much injected*, and in the latter, that portion of it which corresponded to the lumbar region exhibited this increased vascularity to a much greater degree. The structure of the cord and its nerves, like that of the brain and cerebral nerves, was quite free from inflammation.

Thorax.—Lungs remarkably healthy, only one trifling point of adhesion to the pleura, at the anterior and upper part of right lung. Heart not increased in size, no alteration whatever of its valvular apparatus, or lining membrane. There was no fatty degeneration, pericardinal adhesion, or ossification of the arterial trunks.

Abdomen.—Liver, stomach, intestines, and spleen, healthy. The kidneys exhibited no disease in their cortical or tubular portions, but the pelves of both, particularly that of the left kidney, were dilated, and their lining membrane exhibited a dotted appearance, the result

of punctiform ecchymosis. This condition of the membrane extended downwards in both ureters for a couple of inches. The remainder of the ureters and the structure of the bladder, were quite healthy. In the tubuli uriniferi of both kidneys we discovered a large quantity of minute calculi of lithic acid, varying in size from a mere point to that of a grain of mustard-seed.

[The author comments upon this interesting case as follows:]

Within the last few years, "cerebro-spinal arachnitis" has attracted the attention of pathologists in an especial manner, in consequence of its having presented itself in an epidemic form in France during the years 1839, 41, 42, and 43, and more recently in Ireland in 1846.

[The latter epidemic has been described by Dr. Mayne. See 'Half-Yearly Abstract,' Vol. IV, p. 230.]

In the rapidity of its course, resistance to treatment, peculiarity of symptoms, and in pathological appearances, the above case resembles the general character of the disease, but in the age of the patient it differs from any on record, so far as I have been able to discover; nor is any case mentioned, where the cutaneous sensibility of all parts supplied by *spinal* and *cerebral* nerves was developed in so exalted a manner. Dr. Mayne has alluded to the "soreness all over," complained of by a patient admitted into the Hardwicke Hospital, under Dr. Mc Dowell, to whom he attributes the discovery of this symptom. But, since this subject has been attentively investigated, the extreme sensitiveness of the surface supplied by nerves emanating from the portion of the cord engaged, has been noted as almost pathognomonic of the disease. Thus Ollivier mentions it as a marked symptom, in one of his cases, that even the bedclothes could not be borne; and Monsieur Grisolle says, "Souvent aussi ces parties sont le siège de crampes, tandis que la peau présente une exaltation de sa sensibilité telle, que la moindre pression exercée sur elle, ou le plus léger mouvement imprimé, arrache des cris aux malades. Cette exaltation se remarque surtout aux membres;" and in a case published in Graves's Clinical Medicine, where the matter from a carious temporal bone, had penetrated the dura mater, and gravitated downwards along the spinal cord to the cauda equina, I mentioned in my notes of the case, supplied to Dr. Graves, being at that time his clinical clerk, that "*a few days before death he was attacked with spasms, resembling those of tetanus, and the surface of the body became exquisitely tender to the touch*," though the membranes of the cord were *quite healthy*, from which it may be inferred that this exalted sensibility of surface is rather a measure of the irritation of, or pressure upon, the roots of the nerves, than of the *inflammation*, for we find that in some of the cases of apoplexy of the spinal cord, described by Cruveilhier, that excessive pain and spasms frequently preceded paralysis of the limbs supplied by the nerves involved in the disease—and in true myelitis, the limbs are usually attacked with tetanic spasms followed by paralysis, but we have not the excessive pain on motion of the limb, or on pressure, which characterises arachnitis of the cord, and spinal apoplexy,—although the nerves, even before they emerge from the cord, must be deeply involved in inflammation. This subject requires, however, further investigation.

The reader will recollect, that during the course of the disease, *the urine was passed several times*, and that neither from the surface of the body, nor the substance of the brain, was the least odour of urea exhaled. I am anxious to direct his attention to this fact: for the sudden supervention of cerebral symptoms in an individual, subject to gravel, might have been attributed to the absorption of urea, were it not that the secretion and evacuation of this substance were efficiently performed.

[The annexed case, by Dr. Golding Bird, may not inappropriately follow the above, as in some symptoms there was a marked similarity, and especially in regard to the extreme cutaneous sensibility and the convulsive movements excited by the slightest touch. The result was, however, widely different.]

Art. 12.—*Anomalous Case of Spinal Affection.* By Dr. Golding Bird.

(*London Journal of Medicine*, No. 1.)

The lady who was the subject of the following case resided in a town in Essex, about forty miles from London. I was summoned to her on the night of September 19, 1844, to meet Dr. Baker and Mr. John Thorpe of Maldon, the physician and surgeon under whose care she was. This lady was aged 43, of most amiable disposition, possessed of great moral courage and firmness of mind; one, indeed, who was disposed (to use her own words) "to look on the best side of everything," and in no way the subject, at any period of time, of the class of ailments set down as nervous, hysterical, &c. She had been married sixteen years, and had never conceived; menstruation was performed regularly and painlessly; her general health was good, indeed excellent, although perhaps not robust. Her circumstances in life were affluent, and she declared that neither mentally nor bodily had she experienced any anxiety for years. The following history was given me. Six weeks before my visit, whilst at church, she fancied that a gnat, or some other insect, bit her right leg a few inches above the ankle, and on returning home, as she felt some pain, she removed her stocking, and discovered two small punctures like those inflicted by a gnat. Believing that she had merely afforded a meal to one of those winged depredators, she thought no more of it, although she distinctly recollects feeling pain in the seat of the punctures all the next day. On that day she went on a visit to a town in a distant part of the county, and in the evening the leg became painful, swelling about the locality of the bites, and felt, as she expressed it, death-cold. As on the ensuing morning the swelling appeared increasing, she took alarm and returned home, and summoned her physician and surgeon. Dr. Baker informed me, that on his visit the *right* leg appeared to be the subject of absorbent inflammation; in the course of another day or two this became severe; the thigh swelled considerably, the inguinal glands became large, hard, and painful, the whole limb being white and intensely tender, as like phlegmasia dolens as possible. This swelling and tumefaction, under judicious treatment, slowly subsided; but intense pain, apparently neuralgic, remained in the limb, most

intense in the tract of the sciatic and anterior crural nerves. A few days passed over, and just as the patient was congratulating herself on approaching convalescence, and before she had left the bed, the *left* leg began to swell and become painful, and the left inguinal glands were inflamed; and this limb went through the several stages of what was regarded as phlegmasia dolens, only more rapidly, and with less pain than the other. On its recession, however, it left behind the same painful sequelæ, so that the patient was tortured by neuralgic pains in both limbs,—most intense in the course of the two great nerves before alluded to. The tract of the pain was continuous from the ischiatic notch to the junction of the last lumbar vertebra with the sacrum, where there was, to use the lady's words, "a concentration of agony,"—the slightest touch producing insufferable torture. This excessive intolerance of pressure in that region slowly subsided, and was followed by the insidious accession of the symptoms under which I found her labouring. The first of these was observed a week before my visit, and consequently five weeks after the supposed gnat-bite.

I found her lying on her back in bed, with a remarkably cheerful expression of countenance, and slightly flushed face and hot skin,—both which appeared to be owing to a medical examination at midnight, rather than to disease, as they were replaced by a cool skin and rather pallid cheek, before I left her chamber. She spoke cheerfully, and generally with a smile, as was customary with her. Pulse 88,—generally, however, being but 70; tongue clean and moist. Seeing her thus cheerful, I took her hand; and in an instant a marvellous change came over her—the hand was convulsively contracted, the arm jerked up with almost tetanic violence, the face assumed a hippocratic expression of anguish, and she uttered a scream of pain. Proceeding with my examination, I found that when lying calmly she was free from all pain; but the slightest touch of the limbs produced these tetanic convulsions, accompanied by intense pain in the spine. It was remarkable that *a gentle touch, or fillip with the finger, produced these attacks with the greatest intensity,—a carefully applied and firm grasp causing but little uneasiness.* The sensibility of the arm to touch was, however, far less than that of the feet. Here the touch of a feather was sufficient to produce convulsions more intense than I have ever witnessed, save in tetanus or hydrophobia; the legs and thighs becoming of an iron-like hardness, from the violent spastic contractions of the muscles, and the pain in the lumbar region of the spine being most distressing. Slighter spasms were excited in the muscles of the chest or abdomen by a sudden touch or pressure of the integuments of these regions, provided it were applied below the mammæ; above this part, as well as on the face and neck, I was by no means satisfied that any morbid excitability existed. It was remarkable that, when the arms were thrown into the state of spasm, she always referred the pain to the upper dorsal region; and when the legs were convulsed, she complained alone of the sacro-lumbar spinal region. Ordinary sensation and motion appeared perfect, at least, so far as she could judge; for she dreaded all attempts at motion when in bed, as the mere friction of the moving limbs against the bedclothes was sufficient to excite all the distressing symptoms I have endeavoured to depict: in the free

air, and unsupported, she certainly could move her arms, and when supported by two other persons, she could readily move her legs. Her strength was nearly gone; she felt excessively weak, and could scarcely, by being half-carried, totter to her sofa; and at each pressure of the feet against the floor, spasms came on.

On examining the spine (which was well-formed) by pressure, as well as by the application of a hot sponge, I found but little pain experienced in the cervical region; the dorsal was tender, and any blow there gave her a painful thrill, with the excitation of slight spasms in the upper extremities. The pain increased in proportion as the pressure was applied lower, until the last two lumbar vertebræ were reached, where a sharp blow produced insufferable pain, and a rigidity of the legs approaching opisthotonos; the sacrum, however, could be struck, and the coccyx bent up, without pain. There was neither involuntary action, nor paralysis of the bladder or rectum; appetite excellent; bowels open daily. Urine at night, clear, neutral, sp. gr. 1020; in morning, deposited urate of ammonia, acid, sp. gr. 1028; at noon, pale like water, acid, sp. gr. 1008. All the specimens were free from albumen, and did not become alkaline in twelve hours.

I confess I found myself in no small difficulty in coming to a determination on the nature of this very curious case. I had before me a lady, naturally anything but irritable, or of nervous or hysteric temperament, who a few weeks before was in good health. She suffers, as she believes, from the bite of an insignificant insect, and within twenty-four hours, absorbent inflammation commences in the bitten limb; this runs through a severe but not protracted course, nearly identical with that of phlegmasia dolens in a puerperal woman; the tension subsides, but pain in the tract of the nervous trunks remains. After a short pause, a less intense but similar state appears in the unbitten limb; the phlegmasia subsides, but neuralgia is left. The vascular action in both limbs having disappeared, the neuralgic pains appear to mutually advance, and meet; and are found in greater intensity at the sacro-lumbar articulation. A temporary and delusive improvement in general health occurs, only to be succeeded by an exalted irritability of the whole extent of the spinal cord, from the cervical region downwards, the *reflex function becoming intensely marked, quite independent of any loss of the influence of volition over the limbs, and a physiological condition being presented, resembling more closely that observed in a decapitated snake than any other.* The brain was unaffected; memory, reasoning, the senses, all perfect; motion and sensation universally unaffected. In a word, but one conclusion could be drawn—viz. that my patient was suffering from a highly irritable state of the true spinal axis, whatever else she may have been labouring under. All acute action was gone; the calm face, the clear tongue, the quiet pulse, the correct condition of the functions, all indicated the absence of any of those morbid changes included in the phenomena of inflammation, and connected probably more particularly with want of integrity in the vegetative or organic nervous system. Then the perfect consciousness, sensibility, and volition demonstrated the integrity of the brain; the want of peripheral pains, the absence of morbid changes in the urine, and absolute freedom from all paralysis showed, at least,

that there could be no important organic lesion of the spine. One series of functions of this important element of the nervous system seemed nearly alone involved—viz. those which are comprehended under the term of *reflex*, and to which the attention of physiologists has been directed by the laborious and philosophical researches of Dr. Marshall Hall. Yet my experience failed in bringing to my recollection another similar case. I could only look to tetanus and hydrophobia on the one hand, and to chorea on the other, for any justification of the opinion I arrived at, and yet I need not say how infinitely distant were such analogies. I, however, ventured to give the following opinion: that the gnat-bite having inoculated the patient with a morbid poison, absorbent inflammation occurred as from a dissecting wound, which ran its course, involving probably in the contemporaneous inflammation the femoral nerves; and, on the subsidence of acute action, left the patient (as is not uncommon after ordinary phlegmasia dolens), the subject of intense neuralgic pain in the affected limb. After the recession of absorbent inflammation in the other leg, the irritable state of the nerves was propagated to the spinal cord, perhaps by extension of a very low form of inflammation, and the result was the production of an exalted irritability of the spinal marrow, analogous to that produced by the inoculation of strychnia.

I am quite prepared to hear this opinion found fault with, for at least it was but begging the question. I have candidly given it in the words in which I expressed it at the time to Dr. Baker and Mr. Thorpe. I suggested the following mode of treatment:

1. Keeping up the general health, and backing up the constitution against the local disease, by bland nutritious diet.

2. Endeavouring to reduce spinal irritability by rubbing unguentum veratriæ (veratriæ, gr. viij, adipis ʒvj) along the spine twice a-day.

3. Endeavouring to restore the reflex influence more to the dominion of the will, by nervine tonics, and gently stimulating the capillary circulation generally, by the mildest alteratives. As she had taken mercurials before I saw her, I suggested sulphate of zinc in doses of gr. j, three times a-day (the dose being increased every third day), with gr. iij of iodide of potassium. I need hardly say I suggested the sulphate of zinc from its remarkable influence in chorea and allied affections.

A month passed over before I heard of her progress. The excited state of the spine had, I learnt, rather increased for a week after my visit, and then became stationary. As she did not improve, the family became anxious; further consultation was desired, and I was again summoned on October 21st, not quite five weeks after my first visit. I found the patient as cheerful and happy as before, perhaps rather improved in health. I fancied that the spasmodic shocks—for such alone was the term I could apply to them—were less intense. I could, however, arrive at no other opinion than I had previously, and I begged a continuance of the treatment. She had borne the sulphate of zinc well, up to ϑj thrice a-day. I replaced it by valerianate of zinc for a change, and substituted ung. aconitinæ (aconitinæ gr. j, adipis ʒj) for ung. veratriæ. I heard of her afterwards several times by letter; and at my wish, as she was left anæmiated, iron, in the form

of the ammonio-citrate, was given for a few weeks, and the nervous energy of the weakened limbs restored by carefully and gently applied electro-dynamic currents. I did not see this lady again until the 21st October, 1845, exactly a twelvemonth after my last visit; being called to a patient in a neighbouring village, I went on to her residence to see her. I was much gratified at seeing her in her drawing-room, sitting in an easy chair, from which she rose, with but a slight effort, to welcome me. Her history, from the time of my seeing her a twelvemonth before, may be told in a few words. The state in which I left her gradually subsided, under the use of the remedies; the pain in the legs continuing after the cessation of spasms. At the end of the month the latter ceased, having been gradually and insidiously replaced by partial paralysis of motion, a condition from which she had very slowly emerged under the influence of the electricity; and when I saw her she was absolutely well, with the exception of some rigidity in the limbs, rendering assistance necessary in walking. She has managed to get to church, up a tolerably steep hill, without support.

[The author concludes by submitting for discussion the following points, having, in the course of the narrative of the case, expressed his own opinion with regard to some of them:]

1. Had the gnat-bites, and the consequent absorption of a septic poison, anything to do with the origin of the affection?
2. Was the supposed phlegmasia dolens really phlebitis, or inflamed absorbents? or, was the inflammation really limited to the tract of the nerves of the limbs?
3. How came the unbitten leg to be involved?
4. Was the affection of the spinal cord confined to its theca, and secondarily only affecting the portion presiding over reflex phenomena? or, was the condition simply one of irritation?
5. Was the subsequent paralysis of motion a result of the same state of the spine which coexisted with the excited state of the reflex functions? or, was it a mere consequence of exhausted energy, such as is observed in the leg of a frog, after over-stimulating it by a galvanic current?

Art. 13.—*On the Therapeutic Value of Electro-Magnetism in Rheumatic Paralysis.*

By William Davies, m.d., Physician to the Bath United Hospital.

(*Prov. Med. and Surg. Journal*, Nov. 15, 1848.)

[The case in which the benefit of the above agent was exemplified, was one of subacute articular rheumatism, which had produced such serious changes in the articular system, that the patient was unable to walk, or use her hands. She was admitted twice into the hospital, and underwent the ordinary treatment. Her condition, on the second occasion, was materially worse, as she was unable to grasp anything in her hands. The warm bath afforded some relief; and at the period of leaving the hospital she was able to walk a few yards with assistance. The subsequent progress of the case is as follows:]

From the middle of June, the time of her quitting the hospital,

until the first week in August, she remained with her friends in a most helpless condition, quite unable to do anything for herself; she was then removed to an apartment near the hospital, with the view of trying the effect of galvanism in the warm bath. She was galvanized in the bath daily, with few exceptions, for a fortnight, at the end of which time she was able to walk from the place where she lodged to the hospital and back again, a distance of 300 or 400 yards, an exploit she had not previously performed for more than eighteen months. At this time the application of the galvanism was arrested for a month, in consequence of the great inconvenience attending its use in the common slipper-bath,—the only one at my disposal. During that month she retrograded to nearly her former condition, being unable to do more than walk across a room, and that not without difficulty and with support. On the 23d of September I was enabled again to have recourse to galvanism, in a bath admirably adapted for the purpose, through the kindness of Messrs. Green and Simm, the lessees of the baths. From this date she was galvanized daily, with the exception of the Sundays, for two months, during which time she improved gradually but rapidly, until it was considered no longer necessary to continue the treatment, from her recovery being complete. I am indebted to Mr. Tyler, chemist, of this city, for having taken off my hands the troublesome and laborious office of applying the galvanism. The apparatus used was the ordinary electro-galvanic. The application was continued at first for a quarter of an hour, but subsequently, during half an hour. She took no medicine of any kind while under treatment by galvanism.

The writer thinks it is proper to call attention to one point in the relation of the case, which seems to remove any doubt which might exist, as to whether galvanism really was the efficacious cause of cure, or only a mere coincident. 1st. It could not have been the warm bath alone which brought about the cure, as full trial had been given it under similar circumstances previously, without any appreciable benefit. 2d. That it was the galvanism, is proved by this; that under the first fortnight's application, great improvement took place; that all this improvement was lost during a month's suspension of the treatment, and that on its resumption improvement was again manifested, which went on under its continuance to a perfect cure.

The patient has returned to her occupation of ironer for more than three months, and now stands at her work during twelve hours a-day, six days in the week. By the evening her feet become somewhat painful and swollen, as also her hands; but she told the author within the last week that she was quite well, and that if she had it in her power to follow any occupation that did not involve so much standing, she should be as well as ever she was. The author proceeds to remark—

The above case illustrates sufficiently well the therapeutic influence of electricity in one form of disease,—namely, rheumatic paralysis of the muscles of the extremities, the great nervous centres remaining intact, and that this is the particular form under which we ought to expect benefit to arise from the use of electricity, perhaps, more than under any other, will, I think, appear from a short review of what we know concerning this agent, in its relations to living beings.

Professor Matteucci, of Pisa, to whom we are indebted for nearly all the precise knowledge we possess on this subject, has shown that there is a constant current of free electricity traversing the muscles of all animals, even of man himself;—that the course of the current is from within outwards;—that the higher the animal is in the scale of being, the greater is the amount of electricity developed;—that any cause which has the effect of reducing the vital power of an animal, and impairing its due nourishment, diminishes, proportionately to the extent of change, the intensity of the muscular current;—that immersion of an animal in sulphuretted hydrogen gas destroys the current altogether, and, on the other hand, that anything which tends to increase the development of muscular power, increases also the electric current in those muscles.

It has been observed by Pfaff and Ahrens, and also by Humboldt, as will appear from the following quotation from Müller's 'Physiology,' that in rheumatic affections the electricity of the body is at zero. They say: "During the continuance of rheumatic affections the electricity of the body seems to be reduced to zero, and to become manifest again as the disease subsides. It appears to Humboldt also, that rheumatic patients had an insulating action on the feeble current produced by a simple galvanic circle."

It has been shown that muscles lose their power of contraction when the current of blood towards them is obstructed; this has been observed in the human subject after ligature of a large arterial trunk in the muscles supplied by that vessel, and also in the hinder extremities of animals after ligature of the abdominal aorta. Müller, speaking of the influence of the blood on the contraction of muscles says: "It is therefore certain that the arterial blood undergoes in the motor organs, a change, which, while it gives the blood the venous character, renders it unfit to maintain in the muscles their contractile property,—in other words, that the property of contractility requires for its perfect preservation the constant action of arterial blood on the muscular fibre."

Now, Davy and Faraday, among their numerous additions to physical science, have proved this—that wherever chemical action takes place, there free electricity is produced; in fact, that chemical affinity and electricity are identical powers. Leibig has shown that if fresh muscular tissue be cut small, and macerated in distilled water, it gives an acid reaction on litmus paper, and this, notwithstanding the large quantity of alkaline blood contained in its vessels, thus proving a secretion from the capillaries of an acid nature; so that in muscles there exists an alkaline fluid within the vessels, and an acid fluid without, a moist animal membrane intervening, a condition of matters which has been abundantly proved capable of producing chemical action, and, consequently, of setting free electricity.

Now, from what has been said it has been shown—

1st. That there is in all muscles a constant current of free electricity.

2d. That the intensity of the muscular current bears a direct ratio to the vigour of the animal, and the degree of development of the muscular structure.

3d. That immersion of an animal in sulphuretted hydrogen gas destroys the current altogether.

4th. That in rheumatic affections, the electricity of the body is at zero, but becomes manifest again as the disease subsides.

5th. That a constant supply of arterial blood is essential to the contractile power of muscles.

6th. That wherever there is chemical action, free electricity is developed.

7th. That the conditions of chemical action exist in muscles, by means of the alkaline fluid within, and the acid fluid without the vessels.

Analogous to this last head, and confirmatory of its truth, is an experiment performed by Aldini, at Guy's Hospital, in 1803, in which he took the prepared leg of a frog, and held the extremity in his hand, previously well moistened with salt and water, while he allowed the free end of the sciatic nerve to touch his tongue; contractions of the muscles of the frog's leg were immediately produced, thus proving the existence of an electric current passing between the internal and external surface of his body. See, for further details, Dr. Bird's 'Natural Philosophy,' or his lectures before the College of Physicians, in 1847, published in the 'Medical Gazette.' Donné, in the 'Ann. des Sciences Nat.' for February, 1834, gave the explanation of this experiment, by referring it to the different chemical conditions of the integument of the body, and the mucous covering of the alimentary canal,—the one being acid, and the other, for the most past, alkaline, meeting at the mouth, nostrils, and anus. It will be seen that this condition is similar to what has been already mentioned as existing in muscles.

Now, if we keep before us the various facts I have adduced, and venture on an attempt at their estimation, the following may, perhaps, appear not altogether unreasonable:

1st. We have the fact of a constant electric current in the muscles of all animals. What are the conditions which diminish this current? 1. A low position in the scale of living beings. 2. Imperfect development of the muscular structure, with depressed vital powers. 3. Immersion of an animal in sulphuretted hydrogen gas. 4. A rheumatic condition of the system. All (it will be observed) circumstances in which the free action between the arterial blood and the muscular fibre is either interfered with or destroyed, and all circumstances which impair the contractile power of muscles.

2dly. What are the conditions which increase this current? Everything that is the opposite of the above; high vital powers, full development of the muscular structure, in fact everything that promotes the free action between the arterial blood and the muscular fibre,—everything that is essential to powerful muscular contractions.

These facts seem to point to a very close relation between muscular contractility and electricity, if they do not go far enough to show that the one stands to the other in the relation of cause and effect; and they certainly furnish a very strong theoretical reason, anterior to all experiential evidence, in favour of electricity as a remedial agent in certain forms of impaired muscular contractility.

Art. 14.—*Case of Periodic Convulsions cured by Electro-Magnetism.* By Dr. Byrne, U. S.

(*Charleston Medical and Surgical Journal.*)

[The following case is an addition to the many now on record, which exhibit the beneficial actions of one of the most potent, at the same time most easily applied, of our remedial agents.]

A girl, æt. 12, was first seen on April 5, 1848. She was insensible, hands clenched, pulse 85, regular, head cool, respiration easy. She was violently convulsed, rolling on the floor for a period of three hours, when she fell asleep, after which she awoke well. This occurred daily. She had been freely bled and purged. Her head and spinal column were well formed, and she had never received any injury. Ten gr. calomel were immediately given, followed by castor oil and spts. turpentine for the ensuing morning.

April 6th, 9 o'clock a.m., the author found her up, and she expressed herself as feeling well; pulse natural, 78; but at 4 p.m. was called to see her in a paroxysm similar to that of yesterday, and applied large mustard poultice to the abdomen, and mustard plasters to inside of the arms and legs. When she could swallow (which was at irregular intervals), he gave large doses of tinct. valerian and assafœtida, and enemas of same with turpentine occasionally; the paroxysm lasted three hours, and passed off as usual.

From this time to the 10th of April, she presented the same condition during the forenoon described above; the convulsions recurred regularly at 4 p.m. each day, gradually increasing in violence, and lasting, as usual, from three to four hours.

After the failure of various remedies, the author proposed the use of electro-magnetism. He visited the girl at $4\frac{1}{2}$ p.m. on the 10th, and found the fit on her. The fingers were violently pressed into the palms; the forearm flexed on the arm, and both drawn forcibly against the chest; the knees drawn up on the abdomen; pulse 90, regular and soft; surface cool; unable to swallow. With an assistant to keep her still, we applied the poles of an ordinary electro-magnetic battery, the one to the occiput, the other to the sacrum. A violent convulsive movement immediately occurred, and she escaped from the assistant. We soon, however, repeated the application, and held her securely; in four minutes we had the satisfaction of seeing the muscles relax, and in seven minutes she exclaimed, "*You are burning my back.*" She had never before spoken a single word during the paroxysms, which, as above stated, lasted from three to four hours. From the time she spoke until the present (19th May), she has never had the slightest return of the paroxysms, and is in high health. We continued the use of the battery on the afternoon of the 10th an hour, and repeated it for the same length of time, beginning at 4 p.m. on the 11th of April.

[This is evidently an instance of hysteria, depending probably on the attempt to establish the menstrual nisus, and as such, was precisely a case in which magnetism offers peculiar advantages. It is instructive also, as exhibiting the injurious treatment of the routine practitioner, to which she had been a victim previously to her being seen by Dr. Byrne.]

ART. 15.—*Treatment of Tic Douloureux by injecting the Antrum Maxillare with a Solution of Lunar Caustic.* By Dr. HULLIHEN.

(*American Journal of Dental Science*, Oct. 1848.)

[We give a condensed account of this novel mode of treating a most rebellious disease, but do not profess to form any opinion as to its feasibility; our readers are invited to form their own conclusions. The author says that—]

Having observed that certain diseased conditions of the antrum maxillare induced tic douloureux, and that in all such cases the painful paroxysms could be greatly soothed or aggravated by the kind of injection thrown into the antrum—that of all the injections so employed, none had so distinct, so powerful, and so extensive an effect as lunar caustic; and knowing, too, that lunar caustic had been sometimes applied over the eyelids and brows, with the happiest effect in allaying pain and undue irritability of the eyes, I determined to try it in the treatment of true tic douloureux. I say *true* tic douloureux, a rare disease, emanating from some local cause either about the head or neck, in contradistinction to a *spurious* tic douloureux of the face, a complaint which is so frequently met with, and comparatively so easily cured; but a complaint always induced by debility, malaria, or other causes of a character purely constitutional.

[It is not the author's aim to treat of the causes or pathology of tic douloureux; he contents himself with giving the simple details of several cases, of which our space will allow us to reproduce only the two following:]

In the summer of 1841, a gentleman consulted the author for an unusually severe attack of tic. His age was forty, his occupation was that of a farmer, and his health good. The length of time he had been affected with the disease I neglected to note down. The nerves involved were the first and slightly the second branch of the fifth pair. The paroxysms came on from touching the affected side—often while talking or eating—and very frequently without being provoked by either of the causes just named. The attacks were electric in their character, accompanied by sensations of a *tic*—a symptom never present, I believe, in ordinary neuralgia. The paroxysms were of about one minute's duration, occurring many times every day and night; and they were gradually becoming more exquisitely painful.

Treatment.—I extracted the first molar tooth, it being decayed, and perforated the antrum by way of an alveolar cell which led directly to this cavity. The antrum was free from disease. Upon touching the outer wall of the cavity with the end of a probe, particularly if the end of the probe were dragged over the surface, paroxysms of pain were instantly induced. After the bleeding subsided, I washed out the antrum with a syringe, first with warm water and then with cold, and so alternately, until I was convinced that warm water, in this particular case, had much agency in bringing on a paroxysm, and cold water as great an agency in allaying it. After the blood was thoroughly cleansed from the antrum, I threw into it, with a glass syringe, a solution of lunar caustic (twenty-five grains to the ounce of water), and there retained it for a few minutes, by plugging up the

hole made in the jaw. The caustic had but little effect in any way. The next morning I increased the strength of the solution to fifty grains of caustic to the ounce of water. After taking up in the syringe about as much solution as the antrum would hold—the patient being directed to hold his head in a horizontal position, with the affected side down—it was injected into the antrum, and the opening stopped as before. In a few minutes the patient complained, first of a slight pain on the top of his head—then all over the side of his head —then over the eye, and finally in the antrum. The plug was now removed, and the solution suffered to escape into his mouth, his mouth being effectually protected by holding in it a solution of common salt.

By this time the effects of the treatment were visible. The veins of the affected side, particularly along the temple, were distended and elevated to a remarkable extent; tears streamed from the eye; the flow of saliva was unusual; indeed, every secreting vessel of that side of the head appeared to be excited in the highest possible degree; yet the patient complained of but little pain, and that pain of a dull, benumbing description. The scalp, and indeed the whole side of the head upon which the first and second branches of the fifth pair of nerves are distributed, was sore to the touch; but the patient was entirely free from every symptom of tic douloureux. He was now allowed to return home, and directed to wash out the antrum with cold water once a day—to use the caustic injection once a week—and to return again in three or four weeks; which he did, and reported that he never had the slightest return of the disease. I saw him about five months since, and he still remained well.

It was not until October 20th, 1846, that I had another opportunity of testing the good effects of lunar caustic in a case of tic douloureux. At that time Mr. Johnston, of this city, brought to me an old gentleman, who stated that he had been very sorely afflicted with tic douloureux for upwards of seven years; during which time he had been almost constantly under medical treatment, without any perceptible relief. The patient was about sixty years old, in excellent health, of slender form, intelligent, and very communicative. He stated that in early life he had been a soldier; after which a surveyor—then a merchant—then a farmer—and then a victim to tic douloureux. He stated that he had always enjoyed good health; that the disease came upon him without any known cause; that the first symptom was an unpleasant twitching of his eyelid—then of the muscles of his face—then of a dull pain over his eye—and then, suddenly, the disease in full force. The paroxysms were electric in their character, usually preceded by and ending in numerous sensations of a *tic*. They were from half a minute to a minute and a half in duration, and were repeated from fifty to a hundred times every twenty-four hours. The nerves most implicated were the first and second branches of the fifth pair; the second was more affected than the first, and I was not certain but that the third branch was involved also.

Treatment.—I perforated the floor of the antrum, and after examining into the condition of the cavity, and finding it free from disease, I washed it out well, first with cold and then with warm water.

Both appeared to provoke paroxysms of pain, yet the warm water caused more severe paroxysms than the cold. I then injected the antrum with a solution of lunar caustic, of fifty grains to the ounce of water, after the same manner described in the first case. However, before I could get the hole well plugged in the jaw, a most fearful paroxysm of the disease ensued, which was soon succeeded by another, and another, until the poor old man was nearly exhausted. In about ten minutes this fearful condition of things subsided. I then increased the strength of the injection to sixty grains to the ounce, and threw a portion of it into the antrum, and there retained it by a plug. Three or four slight paroxysms of pain took place within the first five minutes; then the patient began to complain of a sensation of heat in the antrum—then of pain on the top of the head, and along the temple and over the eye, particularly over the eye—and, finally, in the cheek. The veins along the temple were distended, as in the former case; the secretion of tears small—the conjunctiva of a bright pink colour, and the flow of saliva not much increased. The plug was now withdrawn, and the solution allowed to run out, its effects being neutralized in the mouth by the use of salt and water. The patient now complained of a dull, heavy, and distressing pain all over the affected side, and occasionally a slight sharp pain, something like tic douloureux; but this was all that was felt of the disease. The next day the pain on the side of his head had subsided; there was much soreness of the scalp and temple, some congestion of the conjunctiva, a slight swelling of the cheek, and every now and then a very mild sensation of his old complaint. The next day the soreness of that side of his head was better; he had slept well, and ate without *producing any return of his disease*, except an occasional darting pain through the cheek. On the fourth day the patient was still getting better; matter had begun to be discharged from the antrum. On the fifth day, still improving; has every now and then a sharp pain in his cheek, just in front of his ear, but of a comparatively mild character. I now injected his antrum with a solution of sixty grains to the ounce of water. Again he had pain all over the side of his head; again the conjunctiva became flushed, and the scalp sore to the touch; but every symptom of disease had vanished. He left town the following day, with a swelled cheek, a sore scalp, but with a light heart. He was directed to wash out the antrum every day, with water and a little soap—to use the caustic solution once a week—and to let me hear from him in two or three weeks. At the end of two months, his son called to say that his father still remained well; that he had occasional twitchings of the muscles of the affected side of his head, but no pain.

SECT. III.—DISEASES OF THE RESPIRATORY SYSTEM.

ART. 16.—*Œdematous Laryngitis successfully treated by Scarification of the Glottis and Epiglottis.* By Dr. GORDON BUCK, jun.

(*Transactions of the American Medical Association*, vol. i.)

Several of these severe cases having presented themselves in the New York Hospital in the winter of 1847-8, the author determined to try the effects of scarifying the tumefied epiglottis and glottis, as a means of saving life. The following is the mode of performing the operation:

The patient being seated on a chair, with his head thrown back and supported by an assistant, he is directed to keep his mouth as wide open as possible. The forefinger of the left hand is then to be introduced at the right corner of the mouth, and passed down over the tongue till it encounters the epiglottis. Little difficulty is generally experienced in carrying the finger above and behind the epiglottis, so as to overlap it and press it forward towards the base of the tongue.

Thus placed, the finger serves as a sure guide to the instrument. The knife, which is represented in the accompanying woodcut (p. 49), is to be conducted with its concavity downward, along the finger, till its point reaches the finger-nail; by elevating the handle so as to depress the point an inch, its cutting extremity is inserted between the lips of the glottis. It is then to be rotated to either side, giving it a cutting motion while in the act of withdrawing it. This may be repeated two or three times without removing the finger. The epiglottis, and the tumefied surfaces between it and the glottis, may be scarified still more easily with the same instrument, or by scissors curved flatwise.

Though a disagreeable sense of suffocation and choking is caused by the operation, the patient speedily recovers from it. In every instance, the operation was repeated three or four times.

The author reports five cases in illustration of his practice, one of which we transcribe.

Edward Bird, æt. 50, was admitted with symptoms of laryngitis. The same morning he had complained for the first time of sore throat, attended with hoarseness and dyspnœa. The epiglottis was felt with the finger to be swollen, thickened, and convoluted. The pulse was full and strong, though he had been bled to sixteen ounces. Calomel and antimony had been given without relief.

Before resorting to scarification, several of the author's colleagues explored the parts, and satisfied themselves of their condition. The patient being seated upon a chair and his head supported, the edges of the glottis were scarified as well as the epiglottis, and repeated two or three times at the interval of a few seconds. Slight hemorrhage followed, and the patient expressed himself better. The same evening, six leeches were applied over the larynx, and nitrate of silver on either side of the neck externally. Two-grain doses of calomel and the eighth of a grain of tartar emetic were also given every two hours.

The *second day*, patient the same. Pulse, 120, full and strong.

To go on. At six o'clock the same day, the paroxysms of dyspnœa having increased, the scarifications were repeated.

Third day.—Patient worse, and paroxysms of dyspnœa and choking aggravated. The epiglottis is felt to be more swollen. At 3 p.m. scarification with the curved knife repeated. At 6 o'clock tracheotomy was proposed, but refused by the patient. An attack of erysipelas now supervened, on the subsidence of which the patient's condition was much improved, and on the sixth day, the voice resumed its natural tone.

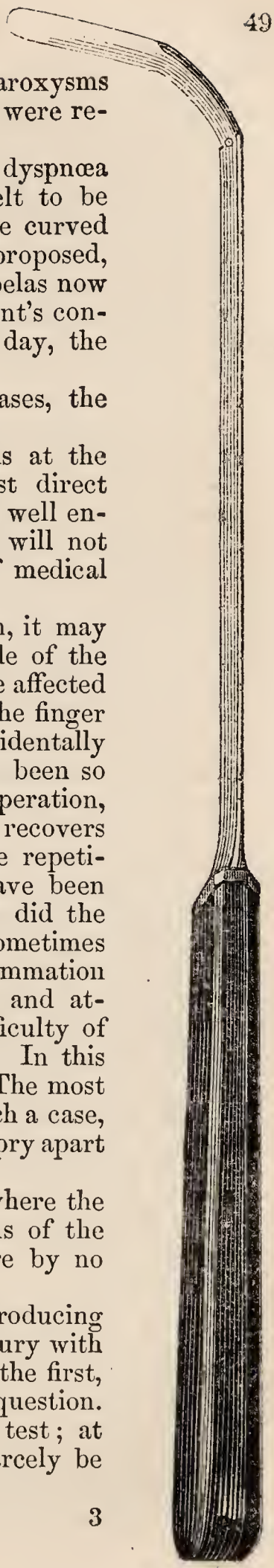
[Upon this and the other accompanying cases, the author remarks as follows :]

The operation now under consideration aims at the removal of the obstruction itself in the most direct manner, and the results already obtained may well encourage the hope that this formidable disease will not hereafter bear such fatal sway as the annals of medical science show it to have done heretofore.

In respect to the difficulties of the operation, it may be remarked that those which exist on the side of the patient are—1st. Irritation and disturbance of the affected parts themselves, produced by the presence of the finger and instrument. These, as has already been incidentally remarked in the report of the cases, have not been so great as to prevent the accomplishment of the operation, or deter from its repetition. The patient soon recovers from them, and in every instance two or three repetitions, at intervals of three or four minutes, have been submitted to. In one instance only (Case 3) did the patient require urging. 2d. As this disease sometimes supervenes in the progress of phlegmonous inflammation affecting the parotid or submaxillary regions, and attended with rigidity of the lower jaw, the difficulty of separating the jaw might be insurmountable. In this case tracheotomy would be the only resource. The most suitable means of overcoming the obstacle in such a case, would be the cautious use of wooden wedges to pry apart the jaws.

The difficulties on the part of the operator, where the requisite knowledge of the anatomical relations of the parts and the necessary skill are possessed, are by no means formidable.

The dangers of the operation are either of producing suffocation by exciting spasm, or of inflicting injury with the knife on neighbouring parts. In regard to the first, more extensive experience alone can decide the question. In Cases 3 and 4, it was submitted to a severe test; at all events, the danger from this source can scarcely be equal to that of the disease itself.



In regard to the danger of wounding neighbouring parts, the action of the knife is limited on either side by the sides of the thyroid cartilage, which shut in the glottis and render access to the great vessels impracticable. In the swollen state of the lining membrane, the scarifications, unless carried to an undue extent, would not be likely to involve anything beyond the membrane itself.

It will be for future experience to determine in what particular conditions of this disease the operation may be inapplicable. The advantages of its early application are shown in Cases 1 and 2; and in Case 3, the patient's obstinate refusal to submit to tracheotomy compelled our sole reliance on scarifications, and that in circumstances of the most imminent danger from impending suffocation.

Although œdema of the glottis is a disease confined to adult age, yet an analogous condition of the larynx is accidentally produced in children by their attempting to drink scalding water from the spout of a tea-kettle. Numerous cases of this accident have been reported, in which death took place from suffocation, with symptoms of croup, and in which the edges of the glottis and epiglottis were found swollen and blistered. A few of these cases have been saved by tracheotomy. Scarifications would seem to be equally applicable for their relief, and Dr. Marshall Hall, in 1821 (Med.-Chir. Trans., vol. xii), after relating four cases of this accident, observes, in remarking on the treatment: "If the suffocation were imminent, I should not hesitate to propose laryngotomy or tracheotomy, and the former would appear to reach below the seat of the affection. But I now regret that I did not propose the scarification of the epiglottis and glottis, so as to evacuate the blisters." The suggestion of this distinguished physician does not appear to have been carried into effect, or even noticed by those who have treated of this subject since it was made. Dr. Jameson, in his 'Observations on Œdema of the Glottis from attempts to swallow boiling water,' makes no allusion to it.

Lisfranc has proposed making punctures (*mouchetures*) of the swellings in œdema of the glottis, of which Cruveilhier says (Dict. de Méd. et de Chir. Pratique, tome ii, p. 41, 1834), "I doubt whether this little operation has ever been performed." Mr. Ryland (A Treatise on the Diseases and Injuries of the Larynx and Trachea, Philadelphia, 1838, p. 51) says of this method, and of that of M. Thuillier, which consists in making pressure from time to time, by means of the finger, upon the distended lips of the glottis, to promote the absorption of the effused serum, "both plans are fantastic, very difficult, if not impossible of accomplishment, and more likely to increase than diminish the existing mischief."

Mr. Busk, at a meeting of the Royal Med. and Chir. Society, March 9, 1847 (London Lancet, March, 1847), related "two cases treated successfully by making a great number of minute punctures on the back of the tongue, the uvula, and pharynx, with a sharp-pointed bistoury, and then repeating them every half hour for two or three hours."

These are the only methods of treatment analogous to the one under consideration that have been hitherto proposed by others, so far as my researches have ascertained.

Art. 17.—*On the Physical Signs of Pleurisy, and its Consequences.* By Edward J. Shearman, M.D.

(*Transactions of the Provincial Medical and Surgical Association*, 1848.)

[The following remarks form part of Dr. Shearman's admirable retrospective address to the members of the Provincial Medical and Surgical Association, at its last anniversary meeting. After describing the pathological anatomy of the disease in question, and its results in adhesion and effusion, as well as its association with phthisis and with emphysema, he proceeds to consider the physical diagnosis of these lesions as follows:]

What are the physical diagnostic signs then—first, of the pleura being coated with coagulable lymph? secondly, of the existence of fluid in the pleural cavity? thirdly, of pneumothorax and emphysema?

1. The immobility of the affected side; the pleural friction-sound, produced by the rubbing together of the dry or inflamed and roughened surfaces. This is a creaking sound, of an interrupted character, occurring in a series of three or four jerks; it may often be felt by placing the hand upon the corresponding surfaces of the thorax. This sound is sometimes not heard at all, because it is not listened for at the time it exists; for as soon as either the membranes unite, or are separated by fluid, this sound ceases. A little dullness on percussion at the base of the lung generally attends this friction-sound, and the dullness comes on sooner than in pneumonia.

2. When fluid exists there will not only be, first, dullness on percussion; but, secondly, a proportional diminution of the intensity of the respiratory murmur: it will be heard farther off than usual, because the lung is gradually pressed towards the spinal column, or upwards and inwards towards its roots. The fluid will press both on the lung and bronchial tubes, and there will be, thirdly, bronchial respiration, bronchial voice or ægophony, and bronchial cough. When the pleura is quite full of fluid, the lung will admit no air; that side of the chest will be motionless, larger than the opposite side, with its intercostal muscles bulged out, and neither bronchial nor any other breath-sound will be heard. This is sufficient to distinguish it from pneumonic consolidation. The bronchial voice of ægophony is produced by the rapid undulations communicated to the effused fluid by the vibrations of the bronchi and condensed pulmonary tissue, and is generally heard best at the inferior angle of the scapula, when the patient is sitting up in a chair. Fourthly, the total loss of vocal vibration; and fifthly, the respiratory murmur is puerile in the sound side.

But these are precisely the physical signs of pneumonia. How are we to prove they are occasioned by pleurisy? First, unless there be previous adhesion of the pleuræ to prevent, the fluid will always be the most dependent part of the chest, in whatever situation the patient is placed; therefore, by changing his position, we find the upper part of the chest resonant, and the under dull. It is seldom there is so much hepatization, or so much tubercular disease, as to make the

lungs sound dull all over, from the apex to the base; so that when a pleural cavity is quite full, the perfect uniform dullness will be nearly a positive sign.

When the intercostal muscles are bulged out, the affected side, if measured with a tape, will be found from one to two inches larger than the sound one. Dr. Watson states a case of aneurism, where the whole pleural cavity was filled with clotted blood that was considered, by physical examination, to be pleurisy.

When the fluid has partly been absorbed, the diseased side measures less than the sound one. The effect of atmospheric pressure is sometimes so much as even to bend the vertebral column, and produce lateral curvature of the spine. In doubtful cases, the spirometer will materially aid our diagnosis.

3. In pneumothorax the air occupies the highest, and liquid (generally pus) the lowest, portion of the pleural cavity, in all positions. Percussion gives a remarkably hollow tympanitic sound at the top, and is immediately changed to a very dull sound below, which will be more marked on comparison with the other side. No respiratory murmur, nor vocal sound or resonance, can be heard through this air. When the patient breathes, speaks, or coughs, amphoric resonance is heard, and this is often succeeded by an echo, called metallic tinkling. Succussion of the patient's body enables a liquid splashing to be heard, when the ear is close to the body, as well as metallic tinkling.

In emphysema the affected side is larger, remarkably tympanitic on percussion, without any natural respiratory murmur, but with a sibilant rhonchus in the place of the expiratory murmur, and there is emphysematous crackling.

The pathognomonic symptom of the decubitus is worthy of an observation. In the first instance, the patient cannot lie on the affected side, because of the pain on pressure; he lies, therefore, on the sound side, or on his back. At a more advanced period, when the effusion is greater, he cannot lie on his sound side, because the compression of the sound lung, from the fluid of the diseased side above and the bed below, prevents him using his respiratory organs freely; he, therefore, lies on the diseased side, or in a diagonal posture, between his back and the diseased side.

Pleurisy may be mistaken for pleurodynia, neuralgia, rheumatism of the intercostal muscles, hepatitis, and pneumonia.

In pleurodynia there is no heat of the skin, and the pulse, although increased in frequency, yet is wanting in that hardness which accompanies pleurisy. There is also the absence of the short and embarrassed respiration, friction-sound, and dullness on percussion, and sometimes there is a rumbling sound produced by the vibrating contraction of the muscles, which is kept up by the sensation of pain; and it generally occurs in a condition of the system the very opposite of inflammatory, as after considerable losses of blood, or when the blood is impoverished, as in chlorotic females.

Neuralgia, in addition to the absence of fever and the physical signs of pleurisy, generally occurs in paroxysms, and is often ushered in by a sensation of numbness, creeping, or pricking, in the affected

part, and its cessation may be preceded by itching: it generally attacks the intercostal nerve running between the eighth and ninth ribs.

In rheumatism of the intercostal muscles there is seldom any fever; there is absence of the physical signs of pleurisy, and aggravation of the pain on pressure or movement of the muscles, and sometimes a sense of coldness in the affected part.

In addition to the physical signs of pleurisy, the distinction between inflammation of the pleura and of the liver may be made by the absence of increase of pain on pressure over the hepatic region, as well as that sallowness of countenance which generally attends hepatic affections, and the absence of the shoulder pain in pleurisy. The use of Sibson's chest-measurer and the spirometer will also assist in distinguishing these diseases, as the loss of respiratory motion in the side affected by pleurisy will be well marked.

Hydrothorax arises either from the effect of disease of the heart, or from a low kind of inflammation of the pleura, not terminating in adhesion, or as the effect of chronic pleurisy. I lately attended a case of the former description, where seven pints of fluid were found after death. The effusion into the pleura has no offensive smell unless atmospheric air has been admitted, either through an aperture in the walls of the chest, a pulmonary fistula leading to the trachea, or a hole in the œsophagus communicating with the trachea.

Having thus endeavoured to point out what auscultatory signs are to be depended upon in recognising pleurisy and its effects, I will conversely give a few facts, lately advanced by Dr. Thomas Addison, to show how fallacious some of them are, if exclusively taken.

The permanent effects of old pleurisy on both sides of the chest, bronchitis, hepatization, hypertrophy, and dilatation of the heart, abdominal effusion, enlarged liver and spleen, alter the state of the thoracic viscera so much as frequently to mislead the auscultator, and these cases require the greatest care in their exploration.

When pleurisy occurs low down in the angle between the ribs and diaphragm, anteriorly (the paraphrenitis of the ancients), many days may elapse before either pleuritic rubbing, or any other pleuritic sign, can be heard; and percussion is fallacious on account of the proximity of the liver and stomach. From the same cause, when the effusion is purely serous, and it gravitates to the floor of the cavity, unless it be very abundant, it may escape detection.

Physical examination cannot always distinguish the rub and crepitation of pleurisy in the lowest part of the chest, from similar sounds resulting from recent adhesions between the liver and diaphragm or abdominal parietes; and sometimes croaking bronchial rhonchi very much resemble the rubbing sound.

The friction-sound of pericarditis may sometimes be mistaken for pleurisy; but by attentively listening, the *double* or *to-and-fro* friction of pericarditis will be heard.

A lung rendered solid by inflammation does not distend the cavity and obliterate the intercostal depressions, nor displace the heart. Pleuritic effusion does. The bulged side can be measured in pleurisy.

A solid lung transmits the voice, and if any air remain, the respiratory murmur also; but these phenomena are wanting when the pleura is distended by fluid.

In a lung solidified by hepatization, the vibration of the voice is augmented; but it is prevented altogether by imprisoned fluid. When the pitch of the patient's voice is too high or too feeble, this test becomes useless.

A patient having one solid lung, is indifferent as to posture; but when one lung is full of fluid, he lies on or towards the diseased side.

ART. 18.—*On the Cachectic Asthma of the Aged.* By Dr. G. E. DAY.

(*Treatise on the Diseases of Old Age*, p. 111.)

Under the term cachectic asthma Dr. Day describes an affection which has been almost entirely overlooked by British practitioners, and is excited by impurities retained in the blood. There is an attempt on the part of nature to make the bronchial mucous membrane eliminate the effete matter in the form of expectoration.

Asthma is very often associated with a deficient or morbid action of the kidneys. Dr. Day, who has seen many instances of this affection, terms it *urinous asthma;* after the example of Schonlein, Canstatt, and other continental writers. The following are the most important points in reference to this form of asthma:

It seldom occurs before the sixtieth year, and is most common after seventy. On examining a patient thus affected, we usually found a general suppression of the secretions, the skin being dry and rough, and the bowels torpid. The urine is scanty, turbid, of a reddish-brown colour, and so acrid as to produce a sensation of scalding of the urethra, and to give rise to frequent calls to pass water. There is usually deep-seated lumbar pain. The skin is the seat of intolerable itching, and presents the appearance of prurigo, which, like the asthma, depends upon the retention of the urinary constituents in the blood. The eyelids are red and discharge an acrid humour, and ulcers often form on the lower extremities. There are evidences of the endeavour of the system to throw off the morbid matter; they are, however, not sufficient for the proposed end, and the bronchial membrane is called to aid in the work of purification. The paroxysm of asthma usually occurs an hour or two before midnight, and lasts some hours, terminating in a copious expectoration, having frequently a strong urinous odour.

[Another cachectic form of asthma described by Dr. Day is one connected with the gouty diathesis.]

This sometimes comes on as early as the fiftieth year in persons who suffer from anomalous gout. The premonitory signs are those of a fit of regular gout, such as feelings of general discomfort, tightness of the chest, loss of appetite, acid eructations, &c. The patient is led by these symptoms to expect a fit of gout, but instead of this he is seized, usually about midnight, with a feeling of intense suffocation. The face assumes a livid appearance, and is generally swollen; the jugular veins are tense, mucus tinged with blood dribbles from the lips The paroxysm lasts for some hours, and terminates by expectoration.

[The treatment of these forms of asthma is conducted mainly by the attempt to re-establish the urinary secretion by diuretics, warm baths, &c.]

Art. 19.—*On the Use and Administration of Cod-Liver Oil in Pulmonary Consumption.*

By C. J. B. Williams, M.D. F.R.S. &c.

(*London Journal of Medicine*, Jan. 1849.)

In the important paper which we proceed to analyse, the author arranges the results of his inquiries under three heads. 1. General results of the use of cod-liver oil in phthisis. 2. Its mode of operation. 3. Its preparation and administration.

1. The author states that he has prescribed the oil in above 400 cases of tubercular disease of the lungs in its different stages, of which he has notes of 234. Out of this number the oil disagreed and was discontinued in only nine. In nineteen it appeared to do no good, while in the large proportion of 206 out of 234, its use was followed by marked and unequivocal improvement; this improvement varying from a temporary retardation of the progress of the disease, up to a more or less complete restoration to apparent health.

The most numerous cases of lasting improvement were observed in the second stage, in which the tubercular deposit is beginning to soften, the common physical signs being defective movement and breath-sound, with marked dullness and muco-crepitation under the clavicle, or above the scapula, with more decided bronchophony and bronchial breathing towards the seat of the lungs. The effect of the oil, in most of these cases, amounting to near 100, is stated as remarkable. Even in a few days the cough was mitigated, the expectoration diminished in quantity, the night-sweats ceased, the pulse become slower, and the appetite and strength were gradually improved. The first change manifest in the physical signs was generally a diminution and gradual cessation of the crepitus, the breath-sound becoming drier and clearer; but the dullness and tubular character of the breath- and voice-sounds were much more persistent, and rarely exhibited a marked decrease until after several weeks' use of the remedy in conjunction with regular counter-irritation. The author has, however, convinced himself in several cases, that consolidations have been removed, though in old standing cases the restoration has not been perfect. He states that even where the health has been completely re-established, the physical signs of consolidation will often persist, and then, if unaccompanied by decided dullness on percussion, he has learnt not to contraindicate recovery, as they appear to depend on puckering of the pulmonary texture, and other changes due to inflammatory deposit.

In cases in the first stage of the disease, the author has used the oil with equally satisfactory results, but of these he cannot speak with equal precision, as many of them were only seen once.

The most striking advantage from the oil he finds to be in the third stage, even when far advanced, where consumption has not only excavated the lungs, but is rapidly wasting the body, with copious purulent expectoration, night-sweats, colliquative diarrhœa, &c. Of the power of the remedy in this stage, he quotes several instructive and encouraging cases. The total number of such cases amounts to sixty-two, in thirty-four of which the improvement is known to have con-

tinued up to a recent period. Eleven, after temporary improvement, relapsed and terminated fatally. The author further observes: "The results above stated give to cod-liver oil, even as a tardative or palliative of phthisis, a rank far above any agent hitherto recommended, whether medicinal or regimenal. I have made trials of several other medicines of reputed utility in this disease, but their utility and harmlessness fall so far short of those of cod-liver oil, that I regard them now chiefly as subsidiary means, and the more likely to be useful in proportion as they facilitate the continuanee of this superior agent."

2. *Mode of action of cod-liver oil.*—The author does not think it necessary to discuss the question whether the oil owes its efficacy to the iodine contained in it. To suppose that the minute proportion of this ingredient could be the curative agent, would savour of the absurdities of homœopathy, and besides most of the patients had taken iodine in one form or other previously to taking the oil.

It is commonly admitted, the author remarks, that the oil possesses the power of fattening those who take it for any length of time; but this nourishing influence extends beyond the mere deposition of fat. The muscular strength is sensibly increased, and the colour of the cheeks is improved. There is much reason, he thinks, to believe that the oil proves serviceable by supplying the fat-molecules, which appear to be essential to healthy nutrition in forming the nuclei of the primary cells; thus supplying a fat which is capable of being readily absorbed and converted into a better plasma, as well as more readily conveyed by the blood to the vicinity of the tubercular deposits, the absorption of which it favours by dissolving the irregularly concreted fat of which the masses are partly composed.

One of the most remarkable effects of the oil, in the second and third stages of the disease, and in other forms of scrofulous disease, with extensive suppuration, is the speedy removal of the sweats and symptoms of hectic. This the author thinks it does by diminishing the unhealthy suppuration which is excited around the tubercle. The author's view of suppuration is, that it consists of a further oxydation of the exudation-corpuscle, and he therefore explains the use of the oil in its offering a combustible material, and thus checking the process of oxydation of the tissues.

3. *Preparation and administration.*—The author repudiates the idea held by the Germans, that the brown oil is the most efficacious. He prescribes the pale oil, as free from taste and smell as it can be procured. To obtain this, he advises that the livers of the fish should be obtained as fresh as possible, the pale plump livers being preferred. These should be pounded into a pulp, and mixed with water of 120° and filtered; after standing, the oil to be decanted, cooled to 50°, and again filtered. The process is to be quickly performed, and in closed vessels. The author begins with a teaspoonful, gradually increasing to a tablespoonful, floating on some aromatic water. He advises it to be taken about an hour and a half after each meal.

In conclusion, he repeats that cod-liver oil is more beneficial in the treatment of pulmonary consumption than any agent, medicinal or dietetic, that has yet been employed.

SECT. IV.—DISEASES OF THE CIRCULATORY SYSTEM.

ART. 20.—*Table of the Pulses in Diseases of the Heart.*

1. *Simple hypertrophy of left ventricle:* Strong and prolonged.
2. *Hypertrophy with dilatation:* Strong, prolonged, and large.

The above pulses, when accelerated, become *hard.* They may become *weak* and *small*, by any cause which enfeebles the heart's action.

3. *Hypertrophy with contraction:* Tense, but small.
4. *Dilatation with hypertrophy:* The former predominating. Large and prolonged, but soft, often accelerated, "bounding."
5. *Dilatation with attenuation:* Large and weak; small in the latter stages.
6. *Softening:* Small, weak, more or less irregular, unequal and intermittent.
7. *Free regurgitation through the aortic valves:* Eminently "jerking," the arteries unfilled.
8. *Contraction of the aortic valves:* Strength little impaired, unless the contraction be considerable. Regularity generally unaffected.
9. *Great contraction of, or free regurgitation through the mitral valve:* Small, weak, irregular, intermittent and unequal.
10. *Polypus formed before death: Endocarditis with polypus*, and pericarditis with effusion—all cause suddenly a small, weak, irregular, and intermittent pulse.

(*Hope on Diseases of the Heart,* 4th edition.)

ART. 21.—*On the Signs of Diseased Heart afforded to the Hand laid over the Precordia.* By PROF. JAKSCH.

(*Medical Gazette,* Nov. 17, 1848.)

The purring tremor (*frémissement cataire*) perceived in certain affections of the heart, is felt most distinctly when the flat hand is laid over the part of the precordium corresponding to the point of the heart's impulse. When this peculiar tremor is dependent upon narrowing of the left auriculo-ventricular opening, it is perceived at the period corresponding to the diastole of the heart. Dr. Jaksch, however, states that he has observed it in cases of insufficiency of the aortic valves. For determining to which of these morbid conditions the tremor during the diastole is in any case due, he points out the following diagnostic signs:—If it occurs when the impulse is feeble, the heart broad (as indicated by increased lateral dullness on percussion), and the second sound increased, it is dependent on narrowing of the left auriculo-ventricular opening; if, on the other hand, it coincides with an increased impulse, an hypertrophied left ventricle (as indicated by a tremulous impulse and increased dullness, in the longitudinal direction, on percussion), and with absence of the second sound of the heart, it may be considered as most probably dependent upon imperfection of the aortic valves. In cases in which a contracted

left auriculo-ventricular opening coincides with imperfect aortic valves, a purring tremor accompanying the diastole of the heart is sometimes observed coincidently with an increased impulse. The diagnosis of such cases is rendered sufficiently easy by the increased second sound audible in the pulmonary artery, the enlargement of the heart in its longitudinal and transverse direction, and the absence of the second sound from the aorta and the carotid arteries.

It is not uncommon, especially after pericarditis, that peculiar tremors or vibrations are produced within the pericardium, and may give to the hand laid over the region of the heart a sensation of grating, scraping, creaking, or even buzzing. The existence of previous pericarditis, the absence of change of form of the heart, the want of rhythm, and the variableness of the morbid sound, preclude much risk of error in the diagnosis.

By means of the hand laid over the præcordium, Professor Jaksch has perceived vibrations synchronous with the systole of the heart. 1. In cases of narrowing of the aorta from rigid semilunar valves. 2. In cases of dilatation, thinning and relaxation of the portion of the aorta, immediately above the semilunar valve. 3. In aneurismal dilatation of the ascending aorta, accompanied by roughness of the internal surface of the vessel. 4. In some cases of true aneurism of the ascending aorta, with roughness of the orifice or internal surface of the same. 5. In a case in which numerous tendinous bands are stretched across the left ventricle near the orifice of the aorta. 6. In a case of perforation of the inner division of the bicuspid valve. 7. In inefficiency of the bicuspid valve, in consequence of rupture of some of the tendinous cords. 8. In narrowing of the ascending aorta. The sounds dependent upon disease of the aorta are perceived most distinctly when the hand is placed in the middle of the sternum, and is thence carried upwards and to the right, in the direction of the aorta.

SECT. V.—DISEASES OF VARIABLE, OR UNCERTAIN SEAT.

Art. 22.—*On the Treatment of Acute Rheumatism.* By Dr. Bently Todd.

(*Medical Gazette*, Oct. 4, 1848.)

[The author considers that the most instructive way to discuss the treatment of this disease, will be to enumerate the various methods which have been proposed for this purpose, and to point out the reasons for rejecting some and for adopting others. As many as seven different plans may be specified, of which he places last that which he is in the habit of following, and which he calls *the treatment by elimination.*]

1. The first plan is that by venesection. It was thought by many, and still, unfortunately, is thought by some, that when called to a case of rheumatic fever, they have only to open a vein, and, if they succeed in taking away a sufficient quantity of blood, which, in many in-

stances, they think should be little short of two or three pints, that they may by this large and rapid abstraction of blood cut short the disease, and convert a malady which ordinarily lasts some weeks, into one of a few days' duration. Frequently not content with one large bleeding, they will pursue the practice, and bleed a second, a third, or a fourth time, at short intervals, and in large quantities.

The great advocate of this practice at the present day is Bouillaud, of Paris; now, if you look through the record of his cases as given in his book, you will see that his patients, although some of the more urgent symptoms are apparently very quickly overcome, yet linger on in the hospital for a considerable period, suffering much from chronic rheumatism, and exhibiting an extreme anæmia, from which they but slowly, if ever, recover. This plan of treatment has been advocated by some English physicians, and among others, by the celebrated Sydenham, who, however, in the latter part of his career, abandoned, or greatly moderated it, and, I am happy to say, the number of its supporters at present is very small. It is a practice from the adoption of which I would most earnestly dissuade you, as having the support neither of reason nor of experience, and as being fraught with the most dangerous consequences to your patients.

I could tell you of several cases in which a fatal result had been clearly produced by the adoption of this method of treatment, which most probably would have recovered completely had they been let alone, or treated by a milder method. One case in particular made a deep impression upon me. The subject of the case was a young and strong man, of great promise in his profession; he was seized with rheumatic fever, and one of the knee-joints was severely affected. On a previous occasion, a similar attack seemed to yield readily to a very large bleeding, and the patient recovered. His medical attendant, naturally enough, determined on the second attack to adopt the same treatment, which had seemed so successful before, and accordingly bled him very largely, and applied leeches to the inflamed joint. The result was violent delirium; and death by exhaustion in the course of eight-and-forty hours.

I would go so far as to say, that even were we certain that venesection would produce the desired effect on the leading symptoms of the disease, we should yet hesitate ere we make use of a remedy which, in the *general* effect it may have, is most uncertain and most perilous; in one case you may relieve your patient; in another you may send him to a premature grave; or in the same individual, in the first attack, you may obtain complete relief by this method, and in a second attack you may kill him.

2. The second plan of treatment is that by moderate venesection and diaphoretics. This may be called an "expectant" treatment, but it is more than that as regards the venesection; while in other respects it sufficiently merits the name. The advocate of such a plan will say—"when I am called in to a case of rheumatic fever, I think it advisable to commence the treatment by abstracting about ten or twelve ounces of blood, and then to give sudorifies and purgatives." Now, the objection which I entertain to this treatment is this, that the routine abstraction of blood is in all cases unnecessary, and in many

injurious, and that the other part of the treatment can exercise little or no influence on the disease. The tendency of rheumatic fever is to impoverish the blood, especially as regards that highly important portion of it, its colouring matter. All that bleeding really effects is to relieve fever for a few hours (which, however, may quickly return), while it undoubtedly aids the bleaching power of the rheumatic matter, and, as I have observed in several cases, it increases much the tendency to a chronic rheumatic state, and consequently prolongs the convalescence. The bleeding in rheumatic fever is unnecessary, and that its omission diminishes rather than increases the tendency to certain internal inflammations, I am so convinced, that for several years I have not abstracted blood, in any way, in a single case of the disease. The treatment of rheumatic fever by the abstraction of blood, even in moderate quantity, but more especially in large quantity, appears to me to increase the danger of internal effusions into the pericardium and the pleura, and also into the synovial sacs of the joints. Under this treatment we meet with the most violent and troublesome cases of delirium, which, under other methods, either does not occur, or is developed in a form sufficiently easily controlled. I am very much disposed to believe that this treatment predisposes to pericarditis or endocarditis; and that, if these affections occur in a case in which venesection had been frequently practised, they are much less tractable than when you have to deal with them in a patient who has not suffered from loss of blood.

3. A third plan is that by mercury. Some recommend that calomel and opium should be freely administered until salivation is produced. The great objection to this treatment is, that it is an attempt to cure one fever by setting up another, and, in some respects, a worse: even supposing the original disease succumbs, your patient comes out of his rheumatic fever with loose teeth, ulcerated gums, and all the painful and offensive concomitants of ptyalism. Now, I say that, under such circumstances, the remedy is nearly as bad as the disease; and, moreover, it does not in the least guard the patient against what may be termed the accidents of his malady — those severe internal inflammations—pericarditis, endocarditis, pneumonia, pleuritis, peritonitis. I have more than once seen pericardial inflammation supervene while the patient was in a state of salivation; and when we consider how differently various persons are affected by a mercurial course, and how much some suffer from it, even if given in small quantity, I hold that it is highly inexpedient to adopt this plan of treatment, except in cases where some serious internal inflammations have already set in, which it is desirable to combat by the antiphlogistic powers of mercury.

4. Another plan of cure which has been proposed is by colchicum and by guaiacum. These drugs, but especially colchicum, have long been considered to possess a specific influence over rheumatic and gouty affections; and it has been laid down that the rheumatic condition will be subdued in just such proportion as you get your patient under the influence of the colchicum, somewhat in the same way as quinine exercises a specific influence on ague. Now, I think it requires only two or three cases to a candid mind to prove the fallacy

of this doctrine: I myself have frequently given this remedy the fairest trials, but I could never discover any effect from it sufficient to entitle it to the character of a specific. That it is capable of exerting a remarkable influence on gout I do not deny; but even this must be admitted with considerable limitation, and it is certainly far from exercising any similar or analogous influence in rheumatism, whether acute or chronic. The effect of guaiacum has also been supposed to be specific, and similar to that of colchicum; but I am equally indisposed to give it that character. Both these medicines, when given in large doses, purge, and if given in such doses I have no doubt they may do some good, on the principle of eliminating the morbid material, by the alimentary canal; but unless you give them in such doses as to produce colliquative purging, you may do but little towards cutting short the disease; and if you do give them in these large doses, you produce a degree of prostration and debility which is sometimes more dangerous than the disease, and you leave your patient to linger through a tedious convalescence. Colchicum given in small doses produces no good effect in rheumatic fever according to my experience; on the contrary, I fear that in some cases it has a prejudicial influence on the nervous system, making it more irritable and susceptible of impressions, and rendering the patient more obnoxious to the various accidents that are liable to occur in the course of the disease.

5. *Treatment by opium.*—This plan of treatment has been lately revived by a very able physician, Dr. Corrigan, of Dublin. It has much to recommend it, and, on the whole, you will find it extremely serviceable in practice; but I do not recommend it alone: its great value consists in relieving suffering, and soothing the nervous system, while it promotes diaphoresis. The opium is given in large and frequently-repeated doses, care being taken not to produce too much narcotism; but upon this point in general, there is not much need for fear, as there seems to be in the generality of patients a remarkable tolerance of opium. Our patient, Elizabeth Stocking, to whose case I have already referred, was ordered on the 23d a grain of opium to be given every three hours, in addition to half a grain of the muriate of morphia, which she had previously been taking at night: in forty-eight hours she thus took sixteen grains of opium exclusive of the morphia, yet her pupils were not at all contracted, nor was she in any degree narcotised. The effect upon her has been most beneficial: her nervous excitement has been calmed down, and her pain materially relieved. It will not, however, do to employ this plan alone,—it should be conjoined with other treatment. I do not recommend it by itself.

6. A sixth plan of treatment proposed long ago by Dr. Haygarth, consists in giving bark in large doses, for which more recently the less bulky sulphate of quinine has been substituted. Now just imagine the state in which the pathology of a disease must be, when measures so completely at the opposite extremes of our therapeutical resources are advocated for it—as venesection to the amount of two or three pints on the one hand, and large doses of quinine on the other: some would even give as much as five or ten grains two or three times a day. Now I have tried both methods of treatment, and I approve of

neither; but if I were tied down to one or other of them, I should not hesitate to choose that by bark. In cases where the sweating is colliquative, and the urine copious and pale, with abundant precipitates of *pale* lithates, I have seen great good done rapidly by the use of quinine; but I am not prepared to advise you to adopt this treatment from the beginning, because it tends to check the secretions, and it may favour the development of internal inflammations.

7. The seventh and last mode of treatment that I shall mention to you, is that which you have seen me adopt frequently in this hospital, namely, *the treatment by elimination.* I give it this name, in order that you may keep well in view its main object—to promote the elimination of morbid matter by the various emunctories, and also that you may bear in mind the view of the pathology of the disease upon which it is founded.

It is probable that the *materies morbi* in rheumatic fever is lactic acid. We know that the natural emunctory of this is the skin: many chemists maintain that it will also escape by the kidneys, and if it ever does so, perhaps this is more likely during rheumatic fever than at any other time; and again, since vitiated digestion is apt to produce it in undue quantity, and it, therefore, exists abundantly in the stomach, there is every reason to think a certain proportion of it may be carried off through the alimentary canal. The indications are, therefore, to promote the action of the skin, the kidneys, and the bowels; to use antacid remedies; and to give large quantities of fluid for the free dilution of the materies morbi, and in aid of the drainage by diaphoresis and diuresis.

The best way to promote the action of the skin is by opium, especially if you combine with it nitre and ipecacuanha. For this purpose I use a compound, which resembles the original Dover's powder, which contains nitrate of potass instead of sulphate of potass, as prescribed in the Pharmacopœia compound ipecacuan powder. Our usual prescription is one grain of opium, one grain of ipecacuanha, and five grains of nitre: this must be given every two, three, or four hours, according to the urgency of the symptoms and the need the patient has for opium. This drug quiets the nervous system, and procures sleep, and with the ipecacuan promotes sweating; while the nitre acts upon the kidneys, and the ipecacuan may exercise some influence on the liver. Next you must give purgatives to such an extent as to keep the bowels in a loose state, but not carrying the purgatives so far as to weaken your patient, or worry him by obliging him to be frequently moved in or out of bed. You will find it advantageous to use an alkaline purgative; and there cannot be a better medicine for this purpose than our hospital nostrum—the white mixture containing magnesia and sulphate of magnesia. Sometimes you may give the potassio-tartrate of antimony with advantage, but as it is a depressing remedy, it is not always advisable to use it.

But, while we are thus alkalising our patient, and giving internally sudorifics and diaphoretics, is it advisable to attend to the state of the joints? The diligent physician will tell you by all means to attack at once:—but there is such a thing as "nimium diligentiæ" in physic as well as in any other matters. Many will say, the best thing you

can do is to leech a painful and swollen joint. I formerly tried it extensively, but for some time past I have not done so, as I generally found it either a useless or an injurious practice. You may apply leeches, and in a short time after you will find the pain and swelling removed, and you may be disposed to say to yourself, "here is a proof of their efficacy;" but wait twenty-four hours, and then you will generally find the pain and swelling as bad as ever, and the joint in just the same condition as before. Now apply leeches, and you will probably fail to give any relief. You have by the first application relieved the pain for a time, but you have produced no permanent good,—you have rendered the disease more erratic, and less amenable to subsequent treatment. Frequently when you leech a joint, the pain and swelling subside, but its fellow becomes swollen: leech it, and the swelling and pain return to the original joint. Nothing is more important to avoid, nor more troublesome, if not prevented, than the erratic tendency of the rheumatic state. It will fly from joint to joint, and in pursuing it with leeches you only drive it out of one joint into another. I am satisfied that leeching the joints favours this erratic tendency.

I am not prepared, however, to advise you to neglect the local treatment of the joints. When they are much swollen and painful, you may give great ease to your patient by enveloping them in a large quantity of the soft carded cotton—what is commonly called *cotton-wool*. Over this you must wrap a sheet of oiled silk, so as to cover in the wool completely, taking care to have no part of it exposed. By this air-tight covering, you keep the joints in a complete vapour-bath; and when you come to remove the oiled silk and wool after twelve or twenty-four hours, you find the wool completely saturated with moisture, which generally is strongly acid. You have seen this in Elizabeth Stocking's case: we find the plan so generally useful, that it is adopted in the hospital in nearly every case. It affords great relief, supports and keeps the limb steady, and at the same time promotes sweating. I may just mention that this plan of enveloping the joint in wool and oiled silk is often very beneficial in gout.

In a few, and only a very few, cases, I have found the pain aggravated by the heat which this mode of wrapping generates; and in cases where it is desirable to keep down the sweating, it is not advantageous to carry this plan beyond a day or two.

You perceive that all the means employed in this mode of treatment tend to elimination, and to the relief of pain—the opiate sudorific—the nitre acting on the kidneys—the purgatives on the mucous membrane of the bowels—the wool on the joints.

During this treatment, while you allow your patient the liberal use of simple diluents, you must give a fair amount of nourishment from the first; and I think this may be best supplied by a small quantity of good beef-tea, given frequently throughout the day.

I have many more remarks to make on other points in the treatment of rheumatic fever; but must content myself now with having given you an outline of the eliminatory mode of treatment, and reserve my further observations for another lecture.

Art. 23.—*Rheumatic Gout treated by Lemon-juice.* By Dr. Owen Rees.

(*Medical Gazette*, Jan. 26, 1849.)

The following case is reported:—

Eliza Allwright, a young girl, aged 18, of a sanguine temperament, with auburn hair, and of a fair complexion, admitted into Miriam ward to-day (December 8,) as a patient under Dr. Rees. She is suffering from rheumatic gout in all her joints, and is unable to move; the slightest attempt at motion giving her the most severe pain. She states she is a housemaid at Islington. About a month ago she caught a severe cold, and was confined to her bed for a week. She recovered from this, and considered herself perfectly well; but about a week since was suddenly seized with shivering and nausea, and experienced severe pain down her leg; the pain commencing at the hips. Her ankles also swelled considerably. In a day or two she felt great pain in her knees, which also became much swollen; and she entirely lost the use of her legs. Yesterday, December 7, she felt pain in her shoulders, which gradually extended down her arms to her wrists, and she then lost the use of both arms. The elbow- and wrist-joints are exquisitely painful, but are not very much swollen. She perspires profusely, and is very flushed and feverish. Pulse about 120, and full. Her tongue is covered with a thick moist white fur. Dr. Rees ordered pulv. rhei c. calomel, ℈j statim; succi limonis, ℥ss; mist. camphoræ, ℥j; ter in die.

9th.—Appears a little better; perspires less, and feels less pain. Swellings not diminished. She can move one arm very slightly. Pulse 75, less full.

11th.—Feels less pain.

12th.—Can raise her legs in bed, and also use her arms. The pain has considerably abated. To continue the medicine.

13th.—Much better. Pain entirely gone. Is able to get in and out of bed without assistance. Her bowels not having been relieved for two days, she was ordered pulv. rhei c. calomel ℈j statim. Pulse weak, but natural.

14th.—Still improving. Feels no pain. Swelling much abated. Urine acid; in quantity, only about one pint in twenty-four hours; sp. gr. 1028. To continue the same medicine.

16th.—Complains now of great weakness; has not felt the slightest pain since the 13th: her appetite is good, and she sleeps well. Pergat. Urine, sp. gr. 1020.

18th.—Improving. Expresses a desire to get up, and to have some meat. Pergat. Urine, sp. g. 1025.

20th.—Feels perfectly well, with the exception of slight weakness. Urine contains a large amount of lithates.

22d.—To discontinue the lemon-juice, and to take mist. ferri c. ter in die. Pil. aloes c. myrrhâ, gr. x, o. n.

23d.—Complains of a little pain (probably owing to change of weather).

24th.—Pain gone: feels herself getting stronger.

25th and 27th.—Feels quite well, and talks of going out soon.

With regard to the urine, it has uniformly been scanty in quantity throughout the whole case, and also has constantly been acid.

The author remarks that—

It is principally owing to the very surprising effects which he has observed from the use of lemon-juice in the treatment of rheumatic gout, that he has been induced to notice this case. He has been now for several months in the habit of prescribing the remedy, with marked and rapid benefit.

Among the out-patients at Guy's Hospital, he has met with several prominent examples of cure, notwithstanding that such instances are necessarily derived from a class of persons who are by no means able to assist our treatment by following out our directions either as regards diet or regimen. The early relief from pain was such, that had any one unacquainted with the remedy in use watched the progress of the case, they would almost inevitably have concluded that sedatives had been resorted to.

He first had recourse to lemon-juice for the cure of rheumatic gout from a belief that the vegetable acids, probably owing to the excessive quantity of oxygen entering into their composition, contributed to effect the transformation of the tissues generally, and because lemon-juice was the most palatable form in which such class of remedies could be applied. Moreover, it appeared to him probable that the super-citrate contained in the juice, though in small quantity, was a form of alkaline salt likely to contribute to the alkalinity of the blood in its transformations; knowing as we do, from the examination of the urine, that such organic compounds become converted into carbonates during digestion and circulation.

SECT. VI.—DISEASES OF THE URINARY SYSTEM.

ART. 24.—*On the Diagnosis and Treatment of Pyelitis Calculosa, or Stone in the Kidney.*

By M. RAYER. Translated by Dr. BRYAN.

(*Philadelphia Medical Examiner*, Oct. Nov. 1848.)

Under this title M. Rayer has published an elaborate memoir, which has been translated entire by Dr. Bryan, of Philadelphia. From its great length we are unable to present our readers with an abstract of the whole paper, but are compelled most unwillingly to lay before them only certain portions, though these, it may be stated, are the most important, in a practical point of view.

Pyelitis is the term given to inflammation of the pelvis and calices of the kidney, and may be both acute and chronic, idiopathic, and excited by the presence of foreign bodies, as calculi. The author enters minutely into the anatomical characters of the disease, which may briefly be stated to be more or less infective of the mucous membrane of the pelvis and calices, dilatation of its cavities, softening and ulcerations, the presence of mucus and pus, and, in a chronic form, a peculiar white colour in the membrane. Among the sequences are renal fistula and peri-nephral abscess, dilatation and distortion of

the calices, and atrophy of the true renal tissue; calculous deposit taking the form of the pelvis and calices, &c. &c.

The author then proceeds to observe, that pyelitis varies according to its causes, and allows of division into two classes. The first comprises those cases which arise from mechanical causes, as calculi, worms, acephalocysts, or by retention of urine. In the second class he arranges pyelitis from specific inflammation from the irritation of cantharides, and those which originate during the existence of pestilential (*charbonneuses*) diseases, as scarlatina, puerperal fever, &c. Of these the most interesting is *pyelitis calculosa*, which forms the subject of the present paper. After an account of the manner in which calculous deposit accumulates in the pelvis and calices of the kidney, the form it assumes, &c., the author directs attention to the symptoms, which usually commence in those of renal colic; and in the succeeding stages are those of renal suppuration and abscess.

He then speaks of the diagnosis of the affection in the following words:

Diagnosis. Calculous pyelitis in its various forms may be confounded with a great number of other diseases. Many symptoms of inflammation of the pelvis are, indeed, observed in other affections: thus a mucous or purulent secretion takes place in inflammation of the ureter, bladder, and urethra; the pain in the loins exists in lumbago, in nephralgia, &c.; finally, if a pain in the lumbar region be one of the signs of a collection of pus in the dilated pelvis and calices, other lumbar tumours have neither the same origin or the same seat.

1st. *Lumbar pain* is experienced in different species of acute nephritis, in hydatids of the kidney and of the ureter, in nephritic colic, in retention of urine without inflammation, in lumbago, in certain diseases of the spine, in psoïtis, in aneurisms of the descending aorta, in gestation, in certain diseases of the uterus and its appendages, in some cases of partial peritonitis, and in inflammation of the cellular tissue outside of the peritoneum.

2d. *In nephritis* the pain is often so much like that in calculous nephritis, that we must resort to other characters to distinguish the affection: in pyelitis calculosa the pain is generally more acute. In doubtful cases we must have reference to the presence or absence of mucous or purulent matters in the urine, and to the existence of a tumour in the lumbar region. If these two symptoms are wanting, we may suspect the existence of pyelitis calculosa, when there is a pain in the lumbar region, with fever, exhibiting exacerbations, with an accession of symptoms similar to those commonly observed in nephritic colic.

3d. Pyelitis calculosa with nephritic colic are distinguished from nephralgia by the fact, that in the first the pain is often much more acute and more intolerable, and that it ceases instantly after the emission of a gravel, or on its passage into the bladder from the ureter.

4th. In the case of retention of urine, complete or incomplete, it is not uncommon to hear patients complain of a pain in one or both lumber regions; pains so severe as to induce the belief in the existence of nephritis or of pyelitis calculosa, and yet after death no

appearance of inflammation will be seen; the kidneys, more generally pale than red, appear healthy, with the exception of a slight atrophy of the cones. In this case death occurs suddenly from cerebral derangement.

5th. In lumbago the pain commonly affects both sides at once, and generally with the same degree of severity; it is always exasperated by the movements of the body; it is generally without fever, and sometimes preceded by other muscular or arthritic pains; in pyelitis the pain is experienced nearly always on one side alone (cases of double pyelitis calculosa are rare), or at least with unequal intensity in the right and left sides; it is augmented by contraction of the lumbar muscles, but this augmentation is not to be compared to the pain occasioned by contractions of the muscles in lumbago. Nevertheless it is always easy to distinguish between the pain of lumbar rheumatism and a renal pain. The opinion expressed by Boerhaave on the nature of a pain experienced by him in the region of the kidneys appears to me to be correct.

6th. In caries of the lumbar vertebra, the pain is dull, and generally much less intense than in pyelitis calculosa. This caries is distinguished also by the deformity of the lumbar vertebræ, and often by abscess from congestion, either towards the fold of the groin or towards the buttocks; finally, by a paraplegia, complete or incomplete; sometimes without mucus or purulent mucus in the urine. At the same time paraplegia often induces retention of urine, which produces chronic inflammation of the bladder, and sometimes of the ureters and of the pelvis: complications in which we find the characters of caries of the vertebræ and of pyelitis.

7th. In psoïtis, the patient feels a dull pain in the side affected; this pain becomes afterwards more acute, extending from the lumbar vertebræ to the pubis, and the body is bent forwards and towards the diseased side; the movements of the thigh are very painful; and it is very difficult, not to say impossible, to straighten the back when the body is once bent. After this the glands of the groin become enlarged; then a collection of pus is formed under the peritoneum and substance of the muscle, often with swelling of the limb. When this collection of pus is considerable, it forms sometimes a tumour on one side of the bony pelvis, easily detected by the touch and by percussion. We may confound these purulent deposits with inflamed psoas muscle, with calculous pyelitis, and they may open into the bladder.

8th. Aneurisms of the aorta have been seen to produce lumbar pains similar to those in the kidneys. Occasionally, the aneurismal tumour has been developed on the side of the abdominal cavity without altering the vertebral column (a case in which it is extremely difficult to detect it); and again it has been found on the lumbar vertebræ, and forming a pulsating tumour in this region.

9th. Certain diseases of the ovaries, partial peritonitis in the lumbar region, may simulate disease of the kidney, and especially calculous pyelitis, particularly if they coexist with an acute or chronic cystitis; it is very easy to be deceived under these circumstances.

10th. The same remark may with greater reason be made in re-

ference to inflammation of the extra-peritoneal cellular tissue, in the vicinity of the kidney. This affection may be confounded with pyelitis, when the urine contains no pus, or when there is retention of the matter secreted. On the other hand, when the lining membrane of the bladder is more or less inflamed, the presence of globules of pus in the urine may induce a belief in the existence of inflammation of the pelvis, in the case of peri-nephritis complicated with cystitis. In this last case the diagnosis is never clear.

The *secretion* and *excretion of pus*, or of purulent mucus in the urinary passages, may exist not only in pyelitis but also in other diseases, either of the urinary apparatus or of other organs. Pus from the extra-peritoneal cellular tissue, the psoas muscle, the ovary, &c., either in the pelvis, in the ureter, or in the bladder; the urine becomes charged with pus from acute or chronic cystitis, and simulates disease of the kidney, as also disease of the kidney may simulate one of the bladder.

We have said that when there is neither pain nor swelling in the region of the kidney, the examination of the urine will enable us to distinguish between pyelitis and cystitis; that in inflammation of the pelvis and calices, there is dysuria with a deposit of true pus; that in catarrh of the bladder the urine is glairy and viscous. This remark is true in a certain number of cases; but I have already observed that the glairy appearance may be caused in renal pus by the presence of a certain amount of alkali in the urine, and that the pus of cystitis is not always glairy.

The presence of mucus or pus in the urine, unaccompanied with pain in the bladder, is not characteristic of pyelitis calculosa. To suppose that pus comes from the pelvis or calices, occupied by one or more calculi, there must have existed more or less pain in the upper region of the kidneys.

It is pretended that pus from the kidney is evacuated after the urine; it is certain that it is evacuated, mixed with the urine, but in greater quantities at the end of the emission, whether it come from tha bladder, ureters, or kidney.

I will not now speak of the diagnosis of pyelitis calculosa from critical and metastatic excretions of pus with the urine: I will speak of this in another place.

It is more difficult (on account of the rarity of the case) to demonstrate the true seat of suppuration, when the pus, produced by pyelitis or an extra-renal abscess, passes under Poupart's ligament on the buttock or from the vicinity of the anus. Sometimes the discharges, gravel, generally urates, mixed with the purulent matters which are discharged by the fistula, decide the character of the lesion.

The discharge of purulent fluids, with the odour of urine, or containing urea or uric acid, is pathognomonic of renal abscess in the loins.

We have seen pus from an inflamed pelvis discharged with the stools, in consequence of fistulous communication between the dilated pelvis and the duodenum or the ascending colon, or even with the rectum when the kidney is misplaced.

[After stating the value of the symptoms as diagnostic of pyelitis,

the author proceeds to state the distinctive characters of renal tumours formed by purulent accumulation. The various tumours with which renal abscess may be confounded, are stated to be those which arise from enlargement of the spleen, liver, or gall-bladder; other diseases of the kidneys, as cancer, &c., extra-renal abscess, abscess from caries of the vertebræ, fæcal abscess and accumulation, &c. The diagnosis of these is thus laid down :]

1. Of all the tumours which may be confounded with those produced by an accumulation of pus in the pelvis, the *hydro-nephritic* are, without doubt, those nearest, both from their form, their situation, and from the fluctuation felt throughout their extent. In the two cases, the tumour formed by the enlarged kidney is usually nodular, fluctuating, dull on percussion, and accompanied by an enlargement of the lumbar region. But the tumours formed by the accumulation of pus in the cavity of the pelvis or calices, are the seat of more or less acute pain at one time or other; they are often accompanied by febrile action; and if they are indolent, become painful on pressure or movement of the body. In hydro-nephrosis, on the other hand, the tumour is indolent, and only inconvenient on account of its size. Finally, when the communication between the pouch formed by the distended kidney and the ureter is not completely interrupted, the urine in the pyelitic tumour is purulent and opaque, while in the hydro-nephritic case it is commonly transparent or only obscured by mucus.

2. It is difficult to distinguish a tumour formed of a purulent collection in the pelvis from abscesses situated in the cellular tissue surrounding the kidney, whether these abscesses supervene upon a contusion, or on the passage of pus or urine through renal fistulæ following an inflammation of the pelvis or of the kidney. For the rest, it is to be observed, in a tumour formed by a collection of pus in the cavity of the pelvis, that the fluctuation is deeper in the lumbar region than that of an abscess about the kidney, and this is nearly always followed or accompanied by œdema of the subcutaneous tissue of the loins, which I have never seen in the former case unaccompanied by the latter; nearly always, abscesses situated between the posterior surface of the kidney and the lumbar muscles terminate by elevating the skin; and by the application of one hand on the anterior surface of the abdomen, and the other on the lumbar region, the fluctuation is more sensible than when the pus is only in the pelvis and calices. The passage of pus with the urine will decide the question, but even this sign is wanting when the passages are entirely obstructed.

3. It is more difficult to distinguish in the complex cases where there is at once pus in the pelvis and calices and outside of the kidney. At the same time, after the formation of a purulent collection in the cavity of the pelvis, there occurs at a later period an acute pain in the back part of the tumour, a swelling under the skin; the succession of these symptoms will indicate fistula renales and an abscess of the kidney. But there are cases in which this order of succession of these accidents has not been observed, or the characteristic marks of the lumbar tumour are absent; here the diagnosis is uncertain,

unless the patient have suffered retention of urine, bloody urine, or nephritic colics. In such a case, when once it is decided that the lumbar tumour is not formed of blood, the surest mode of making out the diagnosis clearly, and of preventing the collection of a fluid in the abdominal cavity, or at least the extension of the abscess, is to open the tumour. The character of the fluid from the tumour will clear away all doubt. A fetid odour, like that from stercoraceous abscess, may arise from purulent deposits around the kidney or colon without perforation of this intestine. On the other hand, if a stercoraceous odour does not exclude the idea of an abscess about the kidney, with or without communication with the interior of the pelvis, we must remember that purulent collections formed in the interior of the kidney opening externally, have in many cases no sensible urinary odour. Flakes perceived by the fingers in the abscess do not necessarily authorize us to consider the contents as urinous. I have seen, indeed, tuberculous abscesses of this region present such filaments and a species of organic attritus. But if the diagnosis is not entirely satisfactory at the time of opening the abscess, the after-symptoms will make all clear.

4. In stercoraceous abscesses, even fæcal matters pass out through the fistula; percussion and pressure on the colon favour their exit. Worms and solid food may pass out at the wound, &c.; pus is sometimes evacuated with the fæces at stool.

In extra-renal abscesses, without fistula, neither fæcal matters nor urine pass through the wound. In purulent collections following pyelitis calculosa, urine and sometimes one or more calculi, after the evacuation of pus, pass off.

5. Abscesses from congestion, supervening on caries of the vertebral column, or on tubercular affection of the spine, may be distinguished from distension of the kidney by pus, in as much as they are almost always accompanied with projections of the spinous processes of the vertebræ, and more frequently by paralysis of the inferior extremities, the bladder, and the rectum; besides, these kinds of abscesses, nearly always placed behind the ascending or descending colon, form in the abdomen a tumour nearer the vertebral column, more elongated, and directed obliquely from the spine towards the crural arch.

6. The serous or urinary cysts of the kidneys are rarely sufficiently numerous to imitate a collection of pus. But an acephalocystic cyst in the kidney may simulate a tumour produced by pus in the pelvis. The rubbing, proper to acephalocystic tumours, can be perceived in a small number of cases only, and the evacuation of the acephalocysts with the urine, a symptom which clears all doubt in the case, takes place only after the rupture of these cysts in the pelvis.

7. Tubercular kidneys are rarely large enough to simulate a purulent distension of the pelvis and kidney. The sensation of hardness presented by a kidney filled with tubercles, is very different from that of the renal pouches filled with pus. Ramollissement of the tubercular kidneys may be followed by a fusiform abscess toward the crural arch, not only difficult to distinguish from a purulent collection in the pelvis and vicinity of the kidney, but also from abscesses of congestion supervening on caries of the vertebræ.

8. The cancerous kidney may be so enlarged that it will weigh several pounds, and form a tumour in the lumbar region. This tumour may present an obscure fluctuation, while the greater part of it is composed of blood; but frequent hæmaturias with the external characteristics of cancerous diathesis, will point out the difference between these tumours and those composed of pus in the pelvis.

9. Aneurisms of the descending aorta have been known to simulate abscesses, or a purulent collection in the pelvis or calices. Pulsations synchronous with those of the pulse, a sensation of expansion perceived by the hand, and in a large number of cases the blowing-sound perceived on auscultation, will decide the case.

10. Enlargement of the spleen cannot be mistaken for the left kidney distended with pus. The tumour formed by the spleen is higher up in the region of the large extremities of the stomach, and projects more forwards than renal tumours, and are found nearly always in persons who have long suffered with intermittent fevers.

11. A morbid enlargement of the left lobe of the liver or of its base, in consequence of a serous or sero-purulent deposit in the right pleura, may simulate a tumour formed of pus on the right kidney; and that the more readily, inasmuch as renal tumours always terminate by contracting adhesions to the liver.

12. Acephalocystic cysts of the liver may, to a certain extent, simulate a dilated right kidney adherent to the liver; but these tumours are more superficial, and are not accompanied with purulent or bloody urine. The same remark may be made in reference to tumours of the gall-bladder.

13. It is not always possible at the first examination to distinguish stercoraceous tumours, occasioned by the accumulation of fæces in the ascending or descending colon, from renal tumours, when, as in the latter cases, the lumbar regions are dull on percussion, at least on the lateral portion, when these matters are collected in greater or lesser masses, a morbid sensibility of the intestine corresponding to the kidney is found; and when seen in individuals who have formerly had functional diseases of the urinary organs, there certainly is some uncertainty in forming the diagnosis. At the same time the tumours formed in the ascending or descending colon by obstructed fæcal matters, are usually more cylindrical than renal tumours. On the right side, stercoraceous tumours often extend towards the cæcum, which sounds dull in some points, and sonorous in others, where it is distended with gas. On the left side the fæcal tumour extends to the iliac fossa, and towards the excavation of the pelvis. We often at the same time perceive that the transverse colon contains hard and solid fæces; finally, fæcal tumours disappear after free purgation.

[Having decided the presence of a renal abscess, the author remarks that, previously to devising any mode of treatment, it is necessary to discover the cause of the accumulation, or, in other words, to diagnose the nature of the disease of the urinary organs which has preceded. He then touches on the prognosis, remarking that it is generally not serious in its first stage, when one kidney alone is diseased; not so, however, in the subsequent stages. The danger is imminent where both are implicated, and varies in amount accordingly as the pus is

freely discharged by urine, or is shut up in the kidney. It is influenced also by the duration and termination of renal fistulæ. The treatment is next considered.]

Treatment.—At the beginning of pyelitis, and in its first stage, the nephritic pains are relieved by warm baths and mucilaginous drinks, flaxseed tea, emulsions, small beer, and laudanum, &c.; by leeches, or better by cups applied to the painful part.

When the pain is very acute, and accompanied with suppression of urine, violent efforts at vomiting, with a tendency to syncope; either drinks, fomentations of assafœtida, or of the leaves of henbane, frictions of the tinctures of camphor and opium, or better, fumigations of ether, will fulfil the first indication, that of relieving the spasms, nausea, and syncope.

Generally these symptoms cease after a few hours, either by the expulsion of the gravel or by its passage into the bladder. In such cases cold is sometimes useful; the patient being stripped, and his feet placed on the pavement. This practice has often been followed by the expulsion of the gravel or by the re-establishment of the urinary secretion. This expulsion is also favoured by the application of dry cups in the course of the ureter or on the perineum.

When the primary symptoms have yielded, if the gravel be not expelled, if the urine becomes charged with mucus and the case takes on the characteristics of the second or third stage, we must explore the bladder: and if a small calculus is found, it should be extracted or broken, or its expulsion should be promoted by causing the patient to drink large quantities of spring or mineral water.

When gravel or calculi remain fixed in the calices, the arch of the pelvis or the ureter, inflammatory symptoms thus induced may be relieved by warm baths, flaxseed tea, mineral water, or cupping.

Patients should abstain from sexual intercourse.

We may for a time, by our treatment, relieve the inflammatory symptoms induced by the presence of gravel in the pelvis or calices; but they will always or nearly always remain charged with mucus or muco-pus. With the view of diminishing this secretion, oil of turpentine, in graduated doses, from twelve drops to a drachm per diem, for an adult, has been used. I have also used the balsam of copaiba, the prepared turpentine, aptisan of the buds of the fir tree, cubebs, &c., and I am bound to say in some cases the mucus or muco-pus has been diminished, the exacerbations of renal pain have also been less frequent. In fact, I think that the milk of anise and flaxseed water are the drinks which should habitually be used by the patient in a great majority of cases.

The second indication is the physico-chemical treatment of the renal gravel or calculi. Certain drinks which may be taken in large quantities, such as spring water, and the water of Contrexville, act mechanically in washing the calculi, carrying the smaller gravel through the ureters, and facilitating, by frequent emissions of urine, the expulsion of these bodies. The action of these drinks on the renal calculi, properly so called, is confined to so narrow a space, that in spite of all that can be said, little is to be expected from them. We must not expect too much either from the chemical action of certain

substances on gravel and caleuli of different eompositions. Doubtless experience teaehes that alkaline drinks are generally favorable in the urie-aeid caleuli, and in pyelitis produeed by eoncretions; but attentive observation on the aetion of these drinks, proves also that in gout (a pathological eondition in which the urie-aeid gravel and ealculi are most eommonly generated) the urie-aeid deposit persists after many eures by alkaline waters; and that also the continued use of these is followed by serious ineonvenienee.

When it is found on examination of the urine that the gravel or caleuli are eomposed chiefly of the phosphates (at least in their exterior layers), ehemistry, properly so ealled, presents to us but few resources. Generally, we advise the use of earbonie-aeid drinks; but it is eertain that these very seldom render phosphatie urine elear and transparent. For the rest, a eonsiderable experienee has taught me that an alkaline troubled urine is, if not always, at least nearly always, the result of chronic inflammation of the kidneys. We cannot expeet to modify sueh urines by either vegetable or mineral acids; but may do it by the treatment recommended for chronie nephritis.

In the fourth stage of pyelitis ealculosa, where urine and pus are colleeted, and aeeumulated in the pelvis and ealices, in a manner to form a tumour in the lumbar region, we are directed, in order to favour the passage of the pus through the ureter, to attempt the displaeement of the ealeulus by pressure or eoneussion of the trunk, by long rides on horsebaek or in a earriage. But to suppose that a ealculus can be displaced in this way, so as to allow of the passage of pus along the ureter, is to suppose that a foreign body produees no inflammation in the ureter in elosing its diameter. On the other hand, pressure on the renal tumour when it is already painful, would be misehievous. By this treatment we should exeite inflammation, and perhaps rupture the tumour into the eavity of the peritoneum, or into the extra-peritoneal eellular tissue.

When the pus passes in small quantity every day from the pelvis into the ureter and bladder, either along a furrow whieh the pus and urine have formed on the calculus, or between the ealeulus and the ureter—if the suppuration of the pelvis be not great, and does not produee heetie fever—if the renal tumour is not painful—if, on becoming full, it easily evaeuates itself by the ureter—if the neighbouring parts, the peritoneum, the liver, the spleen, present no signs of present or past inflammation, if the patient has no diarrhœa, and is not materially debilitated, we should attempt to prevent the establishment of acute inflammation in the tumour or neighbouring parts, by rest, by the daily use of baths, by topical emollients, and by a well-regulated diet. We must combat by timely veneseetions proportioned to the intensity of the disease, and the strength of the patient, the inflammation as it is observed to occur in these tumours. Other cireumstanees, such as the advaneed age of the patient, serious lesions of the bladder, of the uterus, &c., may reduee the treatment to one purely palliative.

But there are other conditions in whieh nephrotomy appears justifiable, or at least in which the opening of the pouch of the pelvis

and calices, and the extra-renal cellular tumour, should not be deferred.

Thus, when such a tumour exists in an individual otherwise well organized—if it is habitually painful, in spite of the use of mucilaginous and oily drinks, bath and leeches—if the fever is continual or with nocturnal paroxysms—if the stomach and intestines are continually in a morbid condition—if the tumour continually painful, becomes more so from the least fatigue—if this exacerbation of the renal pain is frequent, and if it be accompanied with a complete suppression of purulent urine or with symptoms of inflammation of parts in the vicinity, the operation of nephrotomy, in spite of its difficulties and poor chances, should be resorted to. With greater reason, if fluctuation is perceptible in the lumbar region; if it is evident that pus has collected between the kidney and the sacro-lumbalis muscle; and with still greater reason, I would say, should a large opening be made without hesitation, after a secondary inflammation of the cellular tissue of this region, or what is much more common, one or more perforations of the kidney distended with pus.

Lafitte and Pouteau have opened abscesses under these circumstances. Not only did they succeed in relieving the patients, but the calculus which had induced the inflammation was found at the bottom of the fistula, and its extraction was followed by a complete cure.

[The mode of performing the operation is thus described:]

First process.—Incision is, of all the operative processes, that which appears to me applicable to the greater number of cases.

I will suppose a case the most difficult and most rare, that in which it is determined to open the renal pouch without an abscess in the back of the kidney. The patient placed on his well side, the body slightly bent to induce a moderate projection in the lumbar region, the surgeon, after close examination of the tumour, which is pressed backwards by the hand of an assistant placed on the front of the tumour, makes an incision from above downwards, three lines from the external margin, of the sacro-lumbalis muscle, and parallel to the vertebral column. The first incision commences at the inferior margin of the lower rib, and extends to the crest of the ilium, and includes only the skin and cellular tissue beneath it. By successive incisions we approach the renal tumour, examining the wound with the finger, to detect the point where fluctuation is most evident. Having found this, a guarded bistoury is plunged into it, and a fresh incision made before the pus has time to escape. Then, with a blunt director or female sound, we examine to see whether the calices and dilated pelvis have been penetrated, or whether we have only penetrated the abscess between the kidney and the square lumbar muscle. In this exploration great care should be observed by the surgeon. I have seen the division of a bridle or the cutting of a vessel followed by considerable hemorrhage.

If by the index-finger of one hand, passed to the bottom of the wound, while the other hand is applied to the anterior surface of the tumour, we perceive the fluctuation of a tumour between the hands, it will be evident that we have but penetrated an extra-renal tumour. Then,

after carefully sponging out the wound, we should pass the bistoury again into the parts, and penetrate the pelvis and calices by an opening large enough to allow of the exit of pus and the extraction of the calculi.

That which is of most consequence in such a case is to obtain a large opening for the discharge of the pus. This done, the patient should not be fatigued by prolonged explorations, with the hope of extracting calculi. Their situation in the ureter, neck of the pelvis, or in an elongated calix, may make it difficult to discover them; otherwise, should the instrument in dividing the kidney strike one of the branches of the calculus (they are often branched), its extraction will be difficult or impossible after a painful exploration. It will be better to wait a few days before attempting the extraction or breaking of the calculi. We should, by proper dressings, preserve a large fistula, which afterwards permits of the extraction of foreign bodies from the kidney.

When the pus collects in the lumbar region just under the skin, the operation presents at first less difficulty. When there is evidently an extra-renal abscess connected with pyelitis calculosa or a renal fistula, the instrument may be propelled at first into the abscess. The opening is afterwards enlarged by a guarded bistoury. Generally, after the discharge of a large quantity of very fetid pus, the swelling disappears, and the finger introduced into the wound does not meet the renal tumour, but enters the pelvic opening. In this case it is useless to explore much for a calculus; it would be dangerous to introduce in the dark a bistoury into an absorbed and flattened kidney; but for all that the chances of cure are not lost. The kidney may afterwards swell at the bottom of the opening, the calculus may approach from the interior of the extra-renal abscess, and its extraction may be possible through the urinary opening, or by new incisions, as in a case reported by Lafitte.

Second process.—(Incision and puncture.) We are advised not to resort to incision, except to get as near to the renal or extra-renal abscess as possible; to cut only about one and a half inch long; to introduce a trocar into the wound until no resistance is met with; to withdraw the trocar, and allow the pus to pass off through the canula. It is also added, if the collection is very near the skin after withdrawing the canula, to enlarge the wound with a bistoury, but that it is better to retain the canula, or replace it by a gum-elastic sound, if the abscess is deep, and if we are not certain that the kidney has contracted adhesions with the neighbouring parts.

This process, less sure than that which consists in a methodic incision through the parietes of the tumour, has the inconvenience of permitting but an incomplete exploration of the abscess and of the renal pouch.

Third process.—(Cauterization and incision.) The process has been applied in cases where the patient would not permit cutting instruments, and in other cases where the abscesses, renal and extra-renal, passed towards the groin or iliac region. This process has the advantage of producing the loss of a certain portion of skin, to induce adhesions around the incision, a useful circumstance in the rare cases

where it becomes necessary to cut into the neighbouring intestine, or even where we fear to enter into the cavity of the peritoneum.

This fear, however, need not exist if we cut on the back part of the loins. Besides, cauterization, mild in its effects, is not applicable when the tumour is distended and painful, or when there is reason to fear a spontaneous opening into the peritoneum or into the intestine.

In other cases, incision is much to be preferred, where, for instance, infiltration of pus and urine has taken place into the extra-peritoneal cellular tissue, demanding prompt evacuation. Whether we have recourse to incision, cauterization, or the two modes combined, to open these abscesses, whether we extract or break up the calculus, it is necessary to keep the external opening patulous by means of a tent, in order to allow of the free exit of pus. If, after the operation, we can neither extract nor discover the calculus; and have no better success after seven days, it is best still to retain the fistula open. Calculi have been known to be discharged several years after the operation; and on the other hand, immediate healing of these fistulæ has been followed by serious symptoms, and even death.

In advising to open the tumours formed by a collection of pus in the cavity of the pelvis and calices, or by secondary abscesses about the kidney, I am convinced that these abscesses, unless they open externally spontaneously, are necessarily mortal. The operation itself presents no immediate dangers; the large vessels cannot be involved, especially when there is but one extra-renal abscess; there is no great hemorrhage to fear, at least in most cases, and no danger of involving the peritoneum or intestine. There is, in reality, against the operation only the difficulty of finding and extracting or breaking the calculi—difficulties which may be postponed, the operation being performed in order to evacuate the pus, and prevent a perforation of the pelvis and calices into the cavity of the peritoneum.

At present, when the structure of these tumours is well known, and the surgeon possesses instruments well calculated to seize and break these stones, the general objections to the operation are much diminished. We may also place in opposition to the unhappy results of the expectant practice, the remarkable and incontestable success obtained by Gaspard Bauhin, Pouteau, Lafitte, Labatte, Saure, Roonhuysen, Colot, Ledran, and many other practitioners. Doubtless, in many of these cases the operation was not exactly nephrotomy; in some the calculus extracted was in an extra-renal abscess, following a fistula of the kidney; and in other cases the calculus not being extracted at the time of the operation, it was found afterwards in the extra-renal abscess, an opening having been made in the pouch of the kidney.

But we must not pretend to perform the operation of nephrotomy—

1st. When we are certain that both kidneys are affected, and probably contain calculi, provided always that there are no extra-renal abscesses, the perforation of which should neither be neglected or deferred.

2d. When the pus passes freely from the ureter to the bladder, when there is no renal tumour, nor immediate fears of fistula of the kidney, and especially when a favorable condition of the system leads

us to suppose that the other kidney has assumed a proportionally increased activity.

3d. When there exist at the same time incurable lesions of the bladder, prostate, or of the intestines.

Art. 25.—*Clinical Lecture on Hæmaturia.*

By R. B. Todd, M.D. F.R.S.

(*Medical Gazette*, Jan. 19, 1849.)

[The lecturer commences by observing, that the most important point of diagnosis is to determine whether the blood flows from the bladder or kidneys. This is sometimes difficult, but mostly it is sufficiently plain. If the blood is from the bladder, there is generally some local pain on pressure, or some disturbance in the vesical functions. The blood is apt to coagulate in the bladder, and impede micturition, and is not uniformly diffused through the urine as in renal hæmaturia. In evacuating the bladder, the first portions of urine are clear, the last more or less deeply tinged with blood. In renal hæmaturia, we naturally expect to find some indication of renal disease, as pain in the loins; the blood is diffused through the urine; there are no clots, unless coagulation occurs in the ureter. Further aid is afforded by the microscope, which distinguishes the vesical from the renal epithelium.

After these preliminary remarks, the lecturer proceeds to narrate the following cases:]

Case I.—William Burrowes, æt. 23, was admitted on the 2d of June, labouring under rheumatic fever, and he is now (June 13) suffering under that disease, accompanied with severe pericarditis. Almost from the commencement of the rheumatic symptoms, he had passed blood in his urine; and when he was admitted his urine contained lithates in large quantity, in addition to the blood. The hemorrhage is gradually getting less, but not until the amount of blood lost has been very great. This I consider a very peculiar case —such a one, indeed, as is very rarely met with; and from the entire absence of vesical symptoms, I should not hesitate to say that the blood is from the kidney.

Now, what can be the cause of the hemorrhage in this instance? It is common to find, in the course of certain diseases dependent on the presence of morbid matters in the blood, more or less irritation of the glands through which the morbid matter is eliminated. The glands especially concerned in the elimination of the poison of rheumatic fever, are the kidneys, and, in the present case, the irritation has been extreme. As a result of it, a great afflux of blood to these organs takes place; and if this engorgement attains a certain intensity, the delicate vessels of the Malpighian bodies give way, and the blood escapes. Now we have many cases to prove that hæmaturia may be caused by irritation of the kidneys, excited by a substance which can reach the gland only through the blood. It is well known that turpentine and cantharides will both irritate the kidneys, when administered in large doses. Cantharides in small doses excites the kidneys, and increases the secretion of the urine, but the excessive

excitement produced by large doses diminishes the flow of urine, the state of engorgement being too great to be compatible with the healthy functions of the organ; finally the vessels yield, and hemorrhage is the result. The effect of turpentine is the same. In the present case, lithic acid was the principal irritating agent, as was shown by the great abundance of lithates with which the urine was loaded. Sometimes oxalate of lime is formed and is discharged with the lithates, as in the present case. Now oxalate of lime is a very irritating substance; and thus in the present case there were probably two sources of irritation—the lithic acid, and the oxalate of lime.

Treatment.—The principal indication in a case of this sort is to promote active elimination by other emunctories besides the kidneys, and so to relieve these organs as much as possible. Thus it will be necessary to excite the action of the skin by diaphoretics; of the bowels by purgatives. Counter-irritation over the region of the kidneys may also be advantageously employed, or, if the patient is robust, a small cupping may be of use; but the strength of the patient, and the amount of the hemorrhage, should always be carefully taken into account prior to the application of this remedy. In this case we should not be justified in taking away blood, the patient being already greatly anæmiated. Sometimes, however, the rapid and sudden abstraction of a small quantity of blood will put a stop to the hemorrhage at once. And this acts, perhaps, on the principle of revulsion, or of counter-irritation. If you have recourse to counter-irritants, you must be careful to employ mustard, and to avoid turpentine and cantharides, the active principles of which, even when they are applied to the skin, are readily absorbed, and may exercise a pernicious influence on the urinary organs.

Case II.—The second case is an instance of hæmaturia accompanying and forming the sequel to a very formidable disease—namely, inflammatory dropsy, or dropsy arising from inflammation of the kidney.

J. Pickford, æt. 40, a labourer, was admitted into the hospital on the 15th of May. His habits have been temperate, but he seems to have been getting into a bad state of health for some time past, as he had abscesses in his axilla and elsewhere a fortnight before his admission. Soon after these appeared œdema came on, first in his feet, but very soon afterwards in his upper extremities and face: finally, the effusion took place in his scrotum and abdomen; and when he entered the hospital he was universally dropsical. One of his most prominent symptoms was scantiness of urine, which did not amount to more than from three to four ounces in twenty-four hours; of specific gravity 1020, very bloody, and nearly solidified by the addition of nitric acid; so small was the quantity of urine, that for two or three days I feared that there might be a total suppression of the secretion. However, on the 17th, the quantity began and continued to increase. Throughout this period it contained blood-corpuscles in great numbers; it was free from crystals of any kind, but contained a great number of fibrinous casts and renal epithelia, which left no doubt as to the blood having its source in the kidney.

The state of the kidneys in this case was probably owing to exposure to cold, but the attack cannot be traced to any particular instance

of exposure. Cold, however, is the most common cause of this state of kidney, particularly if accompanied with a sudden suppression of sweat. Under these circumstances, some morbid material is retained in undue quantity in the blood, which irritates those organs through which it is eliminated, in a manner similar to that in which the morbid matter or poison of rheumatic fever is eliminated. In this way an irritated and inflamed state of the kidney is induced, which sometimes terminates in destructive disease of the organ.

The indications for treatment afforded by a case of this kind are very obvious: they are to restore the defective action of the skin—to soothe and relieve the irritation of the kidney—and to promote the elimination of water from the system.

We have in the hot-air bath a very valuable and ready means of exciting the action of the skin; this was consequently used with our patient from the beginning, and with the effect of promoting sweating while he was in the bath, as well as afterwards. After the hot-air bath has been frequently used, it produces a state of great debility; and this constitutes the chief difficulty in continuing it, in order to gain the greatest benefit from it. In this instance I carried into effect the Russian practice of dashing the patient with cold water immediately he came out of the bath. The effect in this, as in other cases in which I have tried the plan, was certainly to give the patient a greater tolerance of the remedy, and, at the same time, by the reaction which succeeded the cold dash, to cause more active sweating on his return to bed.

With the hope of relieving the active congestion of the kidney, our patient was cupped over the loins, and several ounces of blood were taken away. I cannot say that he derived any benefit from this; and I must confess that in the treatment of similar cases, I have been more frequently disappointed than satisfied by topical bloodletting when the congestion of the kidney was active. I suspect that as long as the morbid matter is undergoing elimination through the kidney, and keeping up irritation of the gland, local bloodletting does little or no good. If a particle of dust gets into the eye, it excites conjunctival inflammation: you may leech the eye, day after day, until your patient is blanched, yet active congestion of the conjunctiva will continue; but remove the particle of dust, and the congestion will quickly subside. So with the kidney—you will do more to relieve the active congestion of which it is the seat, by opening new channels for the elimination of morbid matter, restoring and promoting the action of the skin, and increasing that of the bowels, than by the withdrawal of blood. But when these evacuations have been some time in action, and the congestion of the kidney has assumed a passive character, then the removal of blood by cupping, or by leeching, will often succeed in relieving the congestion.

The third indication, that of promoting the elimination of water from the system, is in some degree fulfilled by the sweating process; but the use of drastic and hydragogue purgatives supplies us with a very efficient means of getting away a considerable quantity of fluid through the intestinal canal. For the generality of cases you will find that which we employed in this case the most efficient remedy of

this class—namely, the compound powder of jalap: it is a safe and sufficiently active medicine. In other instances elaterium may be resorted to, but this is a much more violent remedy, and likewise very uncertain, owing to the difficulty of procuring it in a state of purity.

After the inflammatory condition of the kidney had been subdued by the means above detailed, and that the organ began to resume its secreting activity, as shown by an increase in the quantity of urine, I administered the bitartrate of potass in diuretic doses. Now this would be apparently an unscientific plan of treatment, if this medicine be supposed to exercise any direct stimulating influence upon the kidneys. It is probable, however, that its diuretic powers may be due to some chemical or physical change which it produces in the blood, whereby the exosmose of its water through the Malpighian vessels is favoured. On this view no objection can exist to the employment of this remedy in inflammatory states of the kidney; and, indeed, experience tells so much in its favour, that we should not be justified in abstaining from employing it, merely on account of an hypothesis, which may or may not be well founded.

The renal hemorrhage in this case appears to have been up to this time, when the kidneys began to act more freely, due to the state of inflammation into which the gland was thrown; as the urine began to flow, the hemorrhage diminished considerably, but did not cease. On the 30th of May the secretion of urine was fairly re-established: on that day our patient passed two pints and twelve ounces of urine; on the 31st, two pints and eighteen ounces; on June 1st, three pints; after this the blood began to appear in the urine in increased quantity; and on the 6th of June the amount of urine passed fell to thirty ounces; on the 8th, to twenty-eight ounces. And now the hemorrhage returned with greater violence than ever, so much so that the urine seemed almost like pure blood, and contained not only multitudes of blood-corpuscles, but also the casts of uriniferous tubes, which we know are thrown off in the state of chronic nephritis. The condition of our patient at this time I viewed to be as follows:—The active congestion of the kidneys had passed away; the acute stage has passed, and a chronic nephritic condition has been established. Moreover, he has fallen into a *hemorrhagic state:* he has become pale, his blood thin, and its nutritive powers no doubt greatly impaired, in consequence of which the vessels of the kidney have become weaker, and so less able to maintain their integrity in opposition to the pressure of their contents. In accordance with this view I determined now to alter the plan of treatment, to abandon all antiphlogistic diuretic remedies, and to have recourse to the use of stimulants, astringents, and support. I have, therefore, given him plenty of nutritious food and port wine, and have applied counter-irritation, by mustard poultices, and as a styptic he has taken gallic acid, in four-grain doses, three or four times a day. This treatment seems so far to have had a very good effect; the hemorrhage has decreased considerably, and is fast disappearing.

Case III.—The third case is that of a boy named James Taylor, who is labouring under dropsy after scarlet fever. I call your attention to it now, merely because it affords another instance in which irri-

tation of the kidney, from the presence of a poison in the circulation, some of which is being eliminated through the gland, gives rise to renal congestion and hemorrhage, and causes albumen to appear in the urine after scarlet fever, even after the red particles of the blood have ceased to show themselves in it. We now and then find it produced in the early stage of scarlet fever, even when the eruption is well out, but in general it does not appear until the desquamative stage, i. e. whilst the poison is passing out of the system. It is interesting to notice, that the cases in which the eruption has been trifling, and has not come out freely, are those in which the kidney is most apt to be affected, the work of elimination being thrown chiefly upon the kidney, and very little on the skin. Often the patient may have got well through the fever, and may have had a good convalescence: he goes out, is exposed to cold, and the next day dropsy appears, bringing in its train all the other symptoms of renal congestion.

Now the treatment in such cases, and which we have adopted in the case of the boy Taylor, is to be conducted on much the same principles as in the case which we have last considered—inflammatory dropsy: namely, to relieve irritation, and promote the elimination of water. I do not advise you to have recourse to early local bleeding in these cases; but if the congestion of the kidney lingers after the greatest quantity of the poison may be supposed to have been eliminated, then you will often find benefit from the local detraction of blood in quantities so small as not to affect the general strength of the patient.

Case IV.—The fourth instance of hæmaturia to which I shall refer is a very remarkable case: the hemorrhage appears to have been, in the first instance, vicarious of the menstrual discharge. The patient, 16 years of age, having never menstruated, was admitted on the 22d of May. About two months ago blood began to appear in the urine, without any apparent cause, and she experienced pains in her limbs, flying about from one part to another, supposed to be rheumatic: ever since this time she has continued passing blood in considerable quantities, so that the urine was quite of the colour of blood. By the loss of so much blood she has now become quite bleached. A venous murmur is very audible in the neck, but there is no bellows-sound over the base of the heart, or in the arteries; there are no vesical symptoms; the blood is uniformly mixed, and comes away equally at the commencement as at the termination of micturition.

At the period of life of this girl, when there has been suppression of the menstrual discharge, it is not uncommon to find in its place a periodical hemorrhage from some other part—either from the stomach, constituting hæmatemesis, or from the bowels, or, as in the present instance (and this is extremely rare), from the kidneys. It is difficult to say what determines the seat of the hemorrhage, why it should be in one place more than another; probably the most irritable or weakest organ would be the one most likely to suffer, and in the present instance it is not improbable that there may have been a large secretion of oxalate of lime, which may have been the primary source of irritation, and that which determined the locality of the hemorrhage: unfortunately the urine was not examined at the first, but yesterday, in looking at some through the microscope, I detected several octohedral

crystals, which renders the above supposition not improbable. After the hemorrhage has been once established, it is easy to imagine how it should be kept up : the blood becomes poor, the vascular system weak, and thus a *general* hemorrhagic tendency is brought on, while the derangement that the kidney has suffered from the original attack, determines that organ as the seat of the continued bleeding. From the long duration of the hemorrhage in this case (two months), and the state of extreme debility to which the girl was reduced, I was anxious to improve the state of her blood as much as possible, and to check the hemorrhage. She was well supported, had a moderate allowance of port wine daily, and took astringents, lead, gallic acid, tannin, and the tincture of the sesquichloride of iron. The hemorrhage, however, showed no disposition to stop ; it diminished for a little while, but returned again with as much intensity as before. She is now again taking gallic acid in large and frequently repeated doses. If the hemorrhage does not soon cease, I intend to try some of the terebinthinate medicines, which are supposed to exercise a styptic influence. There is no doubt that they do act favorably as styptics in intestinal hemorrhage, but in renal hemorrhage their power is much less certain, and, moreover, they are very apt to excite irritation.

[The narration of the foregoing cases is followed by the subjoined clinical commentary.]

Of the four cases which I have now given you, you will see that in two—the first and third—the hemorrhage was due to irritation ; in one, the second, it was first caused by irritation, and afterwards continued by the patient getting into a peculiar constitutional hemorrhagic state, called by some *passive hemorrhage :* the last case may be looked upon as purely *passive*, at least during the greatest part of the duration of her malady. Now by the use of the term *passive* I must not be thought to admit a distinction which some pathologists draw, and to grant that hemorrhage may take place by the filtration of the blood through the coats of the capillaries without their rupture—such an hypothesis appears to me to be quite untenable ; it is anatomically impossible for the blood-corpuscles to pass through the coats of the capillaries unless they had pores which would be visible by the microscope. But this is the distinction that I would make : in *active* hemorrhage the rupture of the vessels arises from the presence of an inordinate quantity of blood in them ; in *passive* hemorrhage the same rupture arises, not so much from the quantity of the blood as from its depraved quality, and the ill-nourished and weakened condition of the coats of the vessels themselves, which give way on the slightest pressure.

Thus we see there are two distinct ways in which renal hæmaturia may occur ; and it is very important that the practitioner should clearly determine the real cause of the hemorrhage, as it is this diagnosis which must guide him in deciding what plan of treatment he will adopt.

I may here notice some other ways in which hæmaturia may be brought on :—Renal calculus is a very frequent cause of hemorrhage ; but in this case the hemorrhage is dependent not on the *presence*, but on the *disturbance* and *movement* of the calculus : the calculus may exist for a long time, and yet no hemorrhage occur ; but if the calculus be loosened by exercise or any other cause, blood is passed imme-

diately; this may often be noticed in gouty patients. Again, a state of general cachexia, such as occurs in scurvy, may bring on hæmaturia, or such as results from an aguish state, brought on by the malaria of marshy districts; nothing is more prejudicial to hæmatosis, or the healthy elaboration of the blood, than the influence of the paludal poison. Sometimes a great development of the oxalic diathesis will give rise to renal hemorrhage; and Dr. Prout mentions that he met with several instances of this after our first visitation of cholera, when the oxalic diathesis prevailed extensively.

The nature of the treatment should be determined in a great measure by that of the *cause*. If it is irritation, that irritation should be subdued; the irritating agent should be diverted into other channels by the stimulation of the other emunctories, and counter-irritants should be used; but care should be taken not to use such as might in their constitutional effects irritate the kidneys. If a general tendency to hemorrhage is the cause, anti-hemorrhagics should be administered,—lead, tannin, gallic acid, are those from which you will find the greatest benefit; but tannin or gallic acid is, I think, by far the best. The worst case I ever met with, which was not unlike the second case I have mentioned to you to-day, I treated with tannin, and the man got perfectly well, with a sound kidney. In addition to the tannin, you may with great advantage give a little port wine. Gallic acid is very similar to tannin, both in its effects and in the freedom with which it may be administered. It may be given suspended in a little mucilage, or made into a pill with confection or extract: it may be given in very large doses. I give as much as five grains two or three times a-day, and even much more, frequently. The only disadvantage arising from it is that it constipates the bowels, but this is a very minor consideration: in fact, in some cases it is not altogether a disadvantage, for the less drain the patient has from him the better. Now we have more experience of gallic acid than we were aware; *Ruspini's styptic*, which has been so extensively and so advantageously used, has been ascertained by Dr. A. T. Thomson to be chiefly a solution of gallic acid in alcohol. In all cases of hemorrhage, whether hæmoptysis, hæmatemesis, hæmaturia, or any other form dependent on hemorrhagic tendency, I have used gallic acid with the greatest advantage, and I am therefore inclined to look upon it as the best styptic which we possess.

When the hemorrhage results from a mechanical cause, such as the destruction of a renal calculus, the best single remedy is rest, to which may be added, free dilution, and a general treatment applicable to the peculiar diathesis of the patient.

Art. 26.—*On Diminished Secretion of Urine in Advanced Life.* By Dr. G. E. Day.

(*Diseases of Advanced Life*, p. 261.)

[The author mentions the fact that old persons very often complain of passing very little water. These patients he has noticed to present various indications of an impure or cachectic state of blood, and consequently of the system at large. Among the more common of these manifestations he enumerates:]

1. Rheumatic pains in the limb; chiefly along the course of the sciatic nerve, aggravated by warmth.

2. Affections of the skin and mucous membranes; pemphigus and prurigo senilis seem connected with this state of the system; the lips and eyelids become the seat of herpetic eruptions, which often end in intractable ulcers. The ankles are puffy and liable to ulceration. The ulcers are painful, and secrete a thin fluid, which hardens into a dark-coloured crust.

3. Cerebral affections—headache, vertigo, drowsiness, and other symptoms premonitory of apoplexy.

The urine passed in such cases is dark-coloured, and approaching to or absolutely ammoniacal. It frequently deposits a copious sediment of urates and mucus, and usually communicates a feeling of scalding to the urethra. This condition of urine is a frequent cause of irritable bladder.

Persons suffering from this affection are generally upwards of sixty years of age, and commonly of the male sex. Amongst the causes may be mentioned a predisposition to gout or gravel, want of attention to the skin, improper food, and intemperance. Patients often experience relief from diarrhœa or profuse sweating. In fact, whether the effete matter is removed by the kidneys or the intestinal canal, or whether it is eliminated by the skin, there is always some temporary relief.

The leading indications of the treatment are stated to be, to remove the acrid condition of the urine and of the fluids generally, by rigid attention to diet, by free use of mild diluents, and by alkaline medicines. The skin must be attended to, and vapour- and sulphur-baths supplied. The internal use of sulphur is also recommended, as also is colchicum. In certain cases for the relief of the cutaneous irritability, opium is chiefly depended upon.

SECT. VII.—DISEASES OF THE SKIN, ETC.

ART. 27.—*General Remarks on the Diagnosis and Treatment of Diseases of the Skin.* By J. H. BURGESS, M.D.

(*Medical Gazette*, Feb. 23, 1849.)

Diagnosis.—The importance of an accurate diagnosis must not be lost sight of as an element in the study of diseases of the skin. After ascertaining the form of a disease, the next step is to identify and distinguish it from all other cutaneous affections, including varieties of its own species. It is obvious, therefore, that the utility of all subsequent inquiry mainly depends on accuracy of diagnosis in the first instance. Indeed, it is pretty generally admitted that one of the principal sources of the error which so long prevailed in this country as to the history of skin affections, is owing to the want of opportunity of observing the various eruptions from their commencement to their termination,—a contingency which must always occur while the practitioner has to depend on the irregular attendance

of out-patients for his information. When we recollect the slight difference that exists between a vesicle and a pustule in certain stages of their course; that the bulla of rupia often closely resembles the pustule of ecthyma, and moreover that the fluid of a vesicle may dry into a scab or incrustation; the fallacy of such a means of arriving at pathological facts, and precise descriptions of disease, must be sufficiently obvious. To understand thoroughly the diagnosis of the important class of diseases under consideration, it is necessary that they should pass before the eye of the student in every phase of their existence; and this desideratum is only to be obtained in an institution like the Hospital St. Louis, where the patients are admitted and retained during the progress of the disease. These remarks are particularly applicable to diseases of the face; for, amongst the great variety of eruptions to which this region is subject, it is obvious that there must be a considerable variation in the degree of severity of each, and in their appropriate treatment. For instance, a small herpetic ring, the vesicles of which are slightly exfoliated, situated on a perfectly sound and red surface, may often be mistaken for a patch of lepra without scales. It is needless to dwell on the evil results, as regards the treatment of the patient, sure to follow an error of this kind; but happily this mistake may easily be avoided, and cannot occur to any careful observer; for the depression in the centre, and the prominent border of the leprous patch, may readily be distinguished from the even surface and the debris of vesicles so characteristic of the rings of herpes. Besides, there are generally several patches of lepra present at the same time, some of which are sufficiently developed to indicate their real nature. Again, herpes circinnatus may be confounded with porrigo scutulata, the name *ringworm* being erroneously applied to both. However, one is a vesicular, and the other a follicular disease. The latter is of long duration, forms thick scabs, is contagious, destroys the hair when it occurs in that neighbourhood; while the former is a mild affection, lasts but a short time, never destroys the hair, and terminates by desquamation, or by insensible exfoliation. The rings of lichen circumscriptus are not much larger than those of herpes circinnatus, and hence it is sometimes difficult to distinguish one from the other. Here we must depend principally on the nature of the elementary lesion for a means of diagnosis, which in the former case is a papule, whilst in the latter it is a vesicle. The nature of the eruption once ascertained, the treatment is exceedingly simple, and of short duration.

A knowledge of the elementary lesions is indispensably necessary before we can form a correct diagnosis; and an acquaintance with the secondary products will materially assist in attaining that end, and in distinguishing one variety from another. Having ascertained the form and situation of a given disease, we should next proceed by elimination—the method recommended by M. Cazenave—to discover the nature of the elementary lesion. By a mental process, which habit renders extremely easy, we may compare the physical characters of the disease before us with those of all other diseases of the skin, and so speedily arrive at a knowledge of this elementary lesion, which it is so important to understand well. If, for example, we observe an ele-

vation of the cuticle caused by the effusion of a clear, transparent, serous fluid, we discard, by the process of elimination referred to, the exanthemata, papulæ, &c., and thus finally ascertain the vesicular character of the eruption. We have, then, merely to compare the disease under investigation with the different varieties of the vesicular eruptions, in order to individualize it. Continuing the same process of inquiry, a knowledge of the secondary products which form the basis of Willan's classification will enable us to distinguish the varieties themselves from each other, to separate eczema from herpes, itch, &c., and so with the various other forms of cutaneous disease. This preliminary method of elimination is absolutely necessary in the study of diseases of the skin; for, without it, correct diagnosis is impossible; and, as I have elsewhere observed, diagnosis is of the first importance; for, by disclosing the elementary nature of the disease, it enables us to prescribe a rational and enlightened method of cure.

Treatment.—No branch of pathology abounds with greater interest, or opens a more fertile field for pathological research, than that which embraces a consideration of the etiology and therapeutics of diseases of the skin. The circumstance of their occurring on tangible parts of the body, where their characteristic phenomena are appreciable by the eye, gives the student of this class of affections many and great advantages over the internal pathologist, for, to a certain degree, it approximates their study to that of a positive science, and dispels the conjecture and illusion which are more or less connected with the treatment of the lesions of organic life. The relation of cutaneous diseases to general pathology here claims our special attention. If we assume, and it is not far from the truth, that a vast majority of diseases of the skin are the result of constitutional debility and disorders of the digestive organs and of the fluids, it is clear that an inquiry into the condition of the functions must be instituted, and their present state ascertained, as far as it may be, before a correct method of treatment can be prescribed. The doctrine of crises is intimately associated with the history of eruptions of the skin, and it is of as much importance to know whether a given eruption is a critical and salutary discharge or natural counter-irritant, as to be able to tell the tissue in which it is seated, and its anatomical element. If, for example, a patient presents himself with an eruption, which does not appear to be produced by any external or accidental cause, it is the duty of the physician to ascertain if it is the result of organic disease or constitutional disturbance; and if we examine with ordinary care and minuteness the previous mode of life of the patient, the state of his constitution, and the antecedent diseases, we cannot fail to arrive at the true origin of the disease.

Thus, we frequently find a certain form of impetigo to be in reality but the expression of an exaggerated lymphatic temperament, an obstinate variety of eczema the external manifestation of functional disturbance of the apparatus of secretion, and frequently of the digestive organs; acne is commonly associated in females with disorder of the uterine functions, prurigo with an exalted state of the nervous system, and pemphigus with organic disease of the liver. It is obvious that to treat any of these eruptions as special diseases of the skin, and

of entirely local origin, would be acting more in accordance with an irrational empiricism than with the true principles of medicine. Again, the hereditary predisposition which undoubtedly exists in numerous cases towards the production of what may be called the *special* diseases of the skin, should be taken into account in the treatment of any of these complaints. Lepra, psoriasis, and ichthyosis belong to this category: they are frequently the result of a vicious modification of the economy, which is hereditary and altogether inexplicable. I have observed patients who were literally encased in a scaly envelope of psoriasis, otherwise enjoying the best possible health. The internal functions were undisturbed, and the only inconvenience experienced was the mechanical impediment caused by the thick scaly covering to progressive motion. The various phases of life have also their peculiar influence in the production of skin complaints, which it will be well to bear in mind. It is during the period of infancy and childhood, for example, that we most commonly meet with fevers, certain forms of impetigo, variola, scarlatina, and measles; whereas in the decline of life we observe those chronic non-specific eruptions which indicate an enfeebled and decaying vitality. There is besides a degree of irritability and delicacy in the skin of some individuals, especially in females, which renders them more susceptible of cutaneous eruptions than persons of a duller sensibility of the surface. This condition is often hereditary, and individuals so circumstanced are generally attacked in spring or summer with one or other of the slight ephemeral diseases. A warm temperature, either natural or artificial, by causing increased determination to the vessels of the surface, or spiced food, and spirituous liquors, exaggerate this state of irritability into that of disease, and consequently should be avoided. Indeed, as Alibret has well observed, we should look at the skin as the double instrument of exhalation and absorption, as the deposit or reservoir of an exquisite sensibility, as the agent of most favorable crises in disease, and not merely as a means of defence against the contact of external substances capable of injuring more vital parts, as it is popularly considered.

From the preceding observations it will be seen that the treatment of cutaneous eruptions should always be considered with relation to their etiology. When they are produced by external causes, the treatment is extremely simple, and consists in hygienic measures, emollient applications, and general remedies adapted to the age, condition, and constitution of the patient. When, on the contrary, they are induced by constitutional causes, and the result of internal organic lesion, we should endeavour to ascertain what that lesion is, and where it is situated; and the treatment should be principally directed against this functional or organic cause—the *fons et origo* of the disease. The special diseases of the skin, as lepra, psoriasis, &c., require specific treatment, consisting in the employment of certain powerful remedies which experience has shown to be the most efficacious in this class of maladies.

Amongst the various remedies used in the treatment of skin complaints, I may mention in a general way the following, as those most commonly employed at the Hospital of St. Louis by M. Cazenave, and attended with the greatest amount of success. Local and general

bleeding in the acute inflammatory eruptions; purgatives and alteratives, as slow and gentle derivatives; alkalies in the pruriginous affections; acids in those eruptions with copious exhalation; antimonials in the chronic diseases, especially the squamous; preparations of sulphur, useful only in certain chronic varieties, and greatly overrated by most writers; sudorifics, employed in all the rebellious forms of dermoid complaint; mercury and the arsenical preparations which, although belonging to the class of empirical remedies, are undoubtedly the most efficacious remedial agents we possess against constitutional skin complaints. Baths, simple and compound, are freely used, also the vapour-bath and douche; ointments of sulphur, mercury, and iodine; escharotics, as the nitrate of silver, the arsenical paste of Friar Côme; the acid nitrate of mercury, and the chloride of zinc. I have seen these several remedies extensively employed at the Hospital of St. Louis by Biett, and his able successor M. Cazenave, with excellent effect; and I have continued to prescribe them myself for several years past, both in dispensary and in private practice, with similar good results.

There is a remedy which exercises a powerful influence on the cutaneous exhalents, that I can specially recommend in the treatment of the more rebellious forms of disease of the skin, namely, *phosphorus*. My attention was first directed to this remedial agent during the period of the cholera in 1832, and I then found it successful, when every other remedy had failed, in several cases of that disease, where the vital powers seemed exhausted, and the patient in the lowest state of collapse. In these cases it seemed to act as a violent stimulant, principally through the nervous system, accelerating the circulation, and exalting the muscular irritability in the highest degree. I can now recommend it as one of the most valuable medicinal agents we possess in those inveterate cutaneous diseases, leprosy, psoriasis, lupus, in which the skin seems to adapt itself to the morbid condition, which it retains with singular tenacity against all the usual methods of treatment. The phosphorous treatment of those maladies may be either external or internal. The best method of administering the remedy internally is dissolved in oil or ether, and the phosphorated oil or ether then mixed with powdered gum arabic and mint water. Camphorated lard is the most appropriate vehicle for administering phosphorus externally. Its energetic revulsive properties may likewise be turned to account in certain diseased conditions of the skin. Phosphorus, the iodides of arsenic and of mercury, and cantharides, are the most powerful internal remedies for skin diseases we possess. I have also found iodine and sulphur, and iodine and mercury, in the form of vapour, excellent local remedies in the chronic eruptions.

Art. 28.—*On Collodion in the Treatment of Skin Diseases.* By Erasmus Wilson, Esq., f.r.s.

(*Lancet*, Nov. 1848.)

From careful observation, Mr. Wilson finds collodion to possess four important properties:

1st. That of a mild stimulant.

2d. That of an efficient substitute for the natural epithelium.

3d. That of a mechanical compress.

4th. That of an adhesive glue, from which quality it derives its name.

1st. As a mild stimulant, it is fitted to exert a local alterative action on the congested capillaries of a chronic ulceration, and give activity to the healing process.

2d. In its character of a substitute for the absent scarf-skin, it is transparent, pliant, and more or less impermeable, according to the thickness of the layer that may seem to be required.

3d. Its most remarkable property is the contraction which occurs during the desiccation of the collodion, and which produces a local pressure of considerable power on the surface to which it is applied. Thus, in one case the congestion of the thickened skin was relieved by the varnish-like film of collodion spread upon its surface, by means of a camel-hair brush, as completely as if a nicely-adjusted bandage had been placed over it. In another instance, the writer found a film of collodion entirely remove a purple congestion (resulting from imperfect circulation) from the tip of the nose, in a lady who had long suffered from the annoyance. In a third case, in which the fingers of an elderly lady were congested and blue, and the congestion was attended by pain and throbbing, like that which accompanies chilblains, the collodion produced so much contraction as to render their tips white and bloodless, and he was obliged to discontinue the application in consequence.

4th. The glue-like property of the collodion is evinced in its adhesion of cut surfaces, a property which is much increased by the contraction above mentioned. When employed with the purpose of keeping together the edges of an incision, a piece of cambric or thin linen rag should be dipped in the solution, and placed along the line of incision, after the cut edges have been adjusted and carefully dried, perfect dryness of the skin being a necessary condition to the adhesion of the solution. From the rapidity with which the solution dries, and its perfect adhesive powers, collodion is likely to occupy an important place among the "adjuvantia" of surgical practice.

The diseases of the skin in which Mr. Wilson has hitherto used the collodion with advantage are, chronic erythema of the face; intertrigo; chapped nipples and chapped hands; herpes labialis, preputialis, and herpes zoster; lichen agrius; lupus non exedens and exedens; acne vulgaris; and several affections of the sebiparous organs. In chronic erythema of the face, its contracting power was most usefully evinced, as it was also in lupus non exedens, and acne.

In a troublesome case of chapped hands and fingers, resulting from chronic lichen agrius, the collodion acted not merely as a protective covering, but also promoted the healing of the cracks more quickly than the remedies he has been in the habit of employing. In chapped nipples, it was even more efficient in its protective and curative action, and seemed, in the two instances in which he used it, to work a charm upon the painful skin. The gaping cracks were instantly drawn together and almost obliterated by the contracting power of the remedy, and were effectually shielded from the influence of moisture and the pressure of the gums of the infant, and all this, in consequence of the rapid evaporation of the ether, in an instant of time. In another

point of view the remedy is invaluable as an application to chapped nipples—namely, as being in nowise injurious to the infant, from offering nothing which can be removed by the lips during the act of sucking, and in this particular, therefore, possessing a vast superiority over the various forms of ointments, astringent lotions, &c.

In four instances, it immediately put a stop to herpes labialis, and in a very severe attack, it showed itself to be a powerful and useful remedy. Small superficial ulcerations of the corona glandis and prepuce, caused by excoriation, were cured by a single application, and in a gentleman very susceptible of excoriation, it acted admirably as a prophylactic. From the success of the latter trial, he is inclined to think that it might be usefully employed as a prophylactic, in cases of exposure to syphilitic contagion.

When properly applied, the collodion enters all the crevices of the lines of motion of the skin, and adheres so firmly as to require several washings for its removal. As it is usually prepared, it has the consistence of syrup, and in this state is best suited for those cases in which its adhesive properties are principally needed. Where, however, it is intended to be applied to the surface of an ulcer or abrasion, or to chaps, it is better to dilute it with ether.

[Since the above was written, the author, as well as others, have found that the film left by the evaporation is liable to crack from want of elasticity, and consequently to peel off. This defect is remedied by combining a certain proportion of oil with the ethereal solution of gun-cotton; by this means, the film is sufficiently elastic to follow the motion of the part to which it is applied, without separating into flakes. A further improvement is effected by colouring the solution a flesh colour. The coloured solution may be obtained by the name of Collodion Tinctum.]

Art. 29.—*Treatment of Prurigo.*—Dr. Burgess, looking upon prurigo as primarily a derangement of the nervous papillæ of the skin, to which the papule is secondary, is in the habit of prescribing strychnia and phosphorus. In several cases of the most distressing kind, he has found it allay the irritation after acids, alkalies, arsenic, &c., had failed. He has also seen much benefit from the use of phosphorated ether internally. He narrates a case of pruritus of the vulva which was cured in this manner. His dose of strychnine strikes us as rather heroic, $\frac{1}{6}$ gr. increased to $\frac{1}{4}$.

PART II.—SURGERY.

SECT. I.—SYMPTOMATOLOGY AND DIAGNOSIS OF SURGICAL DISEASE.

Art. 30.—*On the Diagnosis and Treatment of Fissure of the Rectum.* By Bransby B. Cooper, f.r.s.

(*Medical Gazette*, Oct. 27, 1848.)

The lecturer states that he has rarely met with this disease in hospital practice, but has found it not unfrequently among the higher classes of society, particularly in females; and he considers it to depend upon luxurious habits of living, want of sufficient bodily exercise, and also from inattention to the state of the bowels, as constipation is usually concomitant with the complaint. Protracted constipation tends to induce a state of contraction, and consequent resistance of the sphincter muscle; so that, the fæces being retained in the rectum, from the altered condition of the sphincter, the mucous membrane of the bowel becomes inflamed; there is produced a liability to ulceration, and fissure is no doubt the frequent consequence. The existence of fissure is indicated by an excruciating pain in the rectum, which is felt for an hour or two after defecation. The remarkable acuteness of this pain forms the principal diagnostic mark of the disease; for in prolapsus and fistula in ano the character of the pain is rather aching than acute. The pain of fissure is sharp and stinging, and generally confined to one part of the bowel, usually on its posterior surface towards the os coccygis. The description of this kind of pain would lead the surgeon at once to make an examination per anum, when the excessive pain experienced on passing the finger through the sphincter would constitute an additional diagnostic sign of the nature of the complaint. When the finger is introduced, which, from the irritability of the muscle, can only be effected with some difficulty, a ragged depression will be distinguishable in the mucous membrane; an accurate appreciation of the length and depth of the fissure will thus be obtained, and, when the finger is withdrawn, a stain of blood is perceivable on it, which indicates in some measure the form and extent of the ulcer. This disease may be readily cured by the following means:—A straight probe-pointed bistoury should be passed along the finger through the anus, so as to divide, in a longitudinal direction, not only the ulcerated mucous membrane, but also the subjacent muscular fibres of the sphincter, which prevent the healing of the ulcer by their frequent contractions. The knife must not be employed too freely, as there would be danger of cutting through the bowel; but here the degree of force that may be safely employed can only be learned by practical experience. During the operation the patient must be placed in the prone position, with his feet resting on the ground, and his body lying across the bed; the ulcer will then be found on the upper or coccygeal surface of the bowel, and conveniently

placed for making the incision. Nitrate of silver, or lotions of any kind, are unavailing in this disease; but in almost every case the above operation affords a certain means of cure. It is true that the operation removes only the effect, the cause still remaining; but this also may generally be overcome by a strict system of diet, and the employment of such constitutional remedies as the peculiarities of the case indicate. A very similar fissure often occurs in the centre of the lower lip. This sometimes resists all local applications, but Mr. Cooper states that he has cured it upon the principle just described; that is to say, by dividing the fibres of the orbicular muscle immediately below the fissure, the consequence being, that the ulcer which had remained unhealed for several months, was completely cured in the course of a very few days.

Art. 31.—*On the Differential Diagnosis of Varicocele and Hernia.* By Dr. L. R. Thompson.

(*Monthly Journal*, Nov. 1848.)

It is very frequently stated in books, that the diagnosis between varicocele and hernia is an easy matter. The case detailed proves the contrary. To make a correct diagnosis is of great consequence to the patient, as the application of an ordinary oblique hernial truss, where the principal pressure is wanted over the internal, and not, as in the case of varicocele, over the external ring, may seriously inconvenience the patient, and aggravate the disease. We have the testimony of Mr. Syme as to the difficulty of diagnosis when the dilatation occurs high in the cord, in which case the dilated veins receive an impulse on coughing, and in other respects resemble an inguinal hernia, particularly one consisting of omentum. As the most certain means of ascertaining the truth, the same author directs the surgeon "to compress the neck of the swelling while the patient stands erect, when, if composed of dilated veins, *it will become more tense*." There is a statement made by Mr. Curling,* which would show that this plan may also prove fallacious. He says: "In a patient affected with this disease, if the spermatic cord be pretty firmly compressed between the fingers whilst the patient is in the recumbent position, and the vessels are empty, it will be found, on his assuming the erect position, that the vessels, instead of swelling as before, still remain empty and contracted. Even, too, when the patient is standing and the veins are full, if firm pressure be made on the cord, the vessels below being thus relieved of the superincumbent weight of the blood, will gradually become emptied of their contents."

Notwithstanding this latter statement—for the truth of which in every case, if in any, we would not vouch—the plan of grasping the cord firmly between the fingers—pinching and rubbing the vessels between finger and thumb—is, in the hands of the experienced surgeon, perhaps the most certain means of diagnosis; not because in this way the tumour becomes more tense (which it may or may not, according to the amount of pressure exerted), but because educated fingers can best by this means distinguish the tortuous and dilated

* On Diseases of the Testis, p. 469.

vessels of a varicocele from other tumours of these parts. The student may still be taught the ordinary plan, as given in books, provided he be made aware that the pressure must be *gentle* and not *firm*, as most authors have it; for, as has been shown, if the pressure exerted be great, the veins may remain empty and contracted. Gentle pressure in most cases will suffice to keep up a hernia, but not a varicocele: firm pressure in most cases will keep up both. I would recommend the following manner of stating this method of distinguishing between the two diseases. Place the patient recumbent, and raise the scrotum until the swelling disappear: let gentle pressure be now applied at the abdominal outlet, and the patient made to assume the erect posture, when, if a varicocele, the tumour will reappear, but not so if a hernia. The tumour will be seen to reappear from below if a varicocele; and all pressure being removed, from above if a hernia.

ART. 32.—*Case in which a Halfpenny impacted in the Pharynx, was mistaken for the Irritation of Teething, and Tuberculosis of the Bronchial Glands.* By Dr. OGIER WARD.

(*Dublin Medical Press,* NOV. 29, 1848.)

A boy, æt. 1 year and 8 months, came under Dr. Ward's care, June 23d, when his breathing was so loud and stridulous that it resounded through the hall in which he was waiting. As soon as he saw him, the child began to cry so convulsively, and was seized with such violent coughing, that a close examination of his throat was impossible. He was pale and emaciated, and seemed decidedly phthisical. The glands of the neck were somewhat enlarged, and the chest sounded well on percussion. His mother observed that he was quite well and hearty till March 3d, when she supposed he swallowed a halfpenny with which he was playing, as he began to choke immediately, and the coin could not be found afterwards, and from that moment his breathing had become stridulous. She was then in Coventry barracks, and she took him to the regimental surgeon, who, thinking it an attack of irritation from teething, merely gave him some castor oil. At this time, besides the dyspnœa, he was constantly dribbling a thick mucus, and he could only suck one mouthful of milk at a time, being forced to withdraw from the breast with each effort of swallowing. The mucus was so profuse as almost to choke him; and these symptoms, with an increasing cough, continued for three months, till a short time before he came under Dr. Ward's care, when the dribbling had almost ceased. The mother next took him to the Coventry Hospital, where the case was again considered to be laryngismus from teething, and was treated accordingly. Dr. Ward concluded that the bronchial glands were affected with tuberculosis, as well as those of the neck, and, pressing on the recurrent nerves, were causing the stridulous breathing. He therefore prescribed an iodine liniment, and the syrup of iodide of iron. Under this treatment the child rapidly improved, with occasional relapses, and thus seemed to confirm his diagnosis, when, on October 25th, his mother brought him, looking comparatively well, and produced the halfpenny, which, she

said, he had taken out of his mouth, and put into his father's hand, after a severe fit of coughing the day before. There is now, however, considerable hoarseness when he cries or coughs, the latter symptom not having ceased with the removal of the cause. The halfpenny was very much worn or corroded, and covered with a thick coating of dried mucus or masticated food. From this time the patient has gradually improved, and may now be considered convalescent.

ART. 33.—*Case exemplifying the Difficulty of diagnosing Stone in the Bladder.* By SAMUEL SOLLY, F.R.S.

(*Medical Gazette*, Dec. 29, 1848.)

The following case is interesting as showing how long a stone may remain in the bladder without detection. He had been under a talented surgeon who could not detect calculus:

Robert Kain, æt. 37, was admitted into Henry's ward, No. 3 bed, under the care of Mr. Green, October 3d, 1848. He is a tailor, of Chatham, unmarried, and of irregular habits, short and spare, and of a dark complexion.

In August, 1846, he had gonorrhœa, for which he was treated with Tr. cubebæ, and the discharge was quickly arrested; this is the last time he had gonorrhœa; he had it once before.

In May, 1847, he was attacked in the following manner: he had one day held his water too long on the passage from Chatham to London, and when he attempted to void his urine, could not do so for some time, and at last it came in a very small stream. Afterwards he had frequent and great desire to pass it: he could, however, pass but very little at a time, and with great cutting pain along the urethra. He did not observe any peculiarity in the size or shape of the stream, though he remarked that a thick and white slime settled to the bottom of the vessel, and adhered there. This attack lasted three or four days, and then went off, leaving no effects, but in a week the symptoms returned, and have remained with him since. He was treated as for stricture, by the passage of bougies; subsequently by the injection of warm water, which relieved him the most.

When admitted to the hospital, his urethra was in a very irritable state, so that its firm contraction led to the belief that he had bad permanent stricture, and only a small catgut bougie could be passed: however, this decreased, so that on November 4th a No. 6 catheter could be passed into the bladder. He is now, November 4, in the following state: he is frequently troubled with desire to void urine; this he passes in small quantities, with pain in the urethra, sometimes in either testicle. The urine contains a good deal of thick tenacious mucus, no pus or albumen, but, examined by the microscope, some prismatic crystals are found, apparently triple-phosphate; the prostate gland examined by the rectum is not enlarged, but excessively tender, so that pressure on it causes pain down each thigh, and a desire to pass urine. In passing a catheter, a sensation of roughness is felt just as the instrument is passing into the bladder, probably from thickening or ulceration about the verumontanum or prostate. The patient remarks that when he is upright, walking about, the calls to void urine are less violent than when he is lying down.

The roughness referred to in the above report I experienced in passing the instrument over the verumontanum; it was like the sensation experienced when the catheter passes into a false passage—it was not that of a rough hard body like a stone. I ordered the man the infusion of buchu, with dilute mineral acids, but as we can now well understand, without any relief. I then determined to pass down Lallemand's caustic-holding catheter, and unsheath it for a moment over the verumontanum, but on introducing the instrument very carefully, the point struck distinctly on the stone. I then introduced an ordinary sound, and felt it still more decidedly, and by weighing it in the curve of the instrument, and by carrying the point over the surface of the stone, I came to the conclusion that it was a large stone. Mr. Green, who also examined him, confirmed me in this opinion.

Art. 34.—*Aneurism of the Carotid Artery, simulating Cynanche Tonsillaris.*—Dr. Duke related to the Surgical Society of Ireland the case of a married man, aged 32, who, about twelve months after a severe blow on the head, was attacked with symptoms of ordinary catarrh and sore throat. He had, since the accident which he considered as the cause of his symptoms, been subject to occasional headache, and a rushing noise in his head as of wind. When seen, there were quick pulse, cough, and fever; the right tonsil and side of the fauces appeared inflamed. During the next two days the swelling extended, causing little pain, but considerable difficulty of deglutition. On passing the finger into the mouth, with a view of detecting fluctuation, it was discovered that a strong pulsation existed in every part of the tumour, which was soft and elastic to the touch. The stethoscope, applied behind the angle of the jaw, detected a loud bruit. This revealed the true nature of the case; but next day the patient, being in considerable pain, requested relief from another medical man who happened to be present. The tumour was punctured with a bistoury, and a jet of arterial blood followed; this, however, was commanded by pressure, which was kept up till the following day without more than a few ounces of blood being lost. The common carotid artery was then tied in the usual manner; pulsation immediately ceased in the tumour. There was no subsequent hemorrhage; but the power of deglutition was completely lost for five days after the operation, and then suddenly restored. At the end of five weeks, being apparently quite well, he went to visit some friends, and was induced to drink spirits. During the night smart hemorrhage occurred from the mouth, which proved fatal before assistance could be obtained. No *post-mortem* examination was allowed. Dr. Duke considers this a case of diffused or false aneurism from a wounded or diseased condition of the vessel, the result of the blow. He thinks that the vessel was probably injured by a spiculum of bone, which had caused disease and softening of its coats; and that, during one of the fits of coughing to which he was subject, the artery had been ruptured, and the blood extravasated into the cellular tissue, causing the swelling visible in the throat. This was entirely destitute of visible pulsation, although to the touch the evidences of aneurism were very evident.

Reported in Medical Times, Sept. 1848.

SECT. II.—NATURE AND CAUSES OF SURGICAL DISEASES.

Art. 35.—*Cases of Rupture of the Urinary Bladder, with Remarks by* Eben Watson, m.d.

(Condensed from *The Monthly Journal of Medical Science*, Dec. 1848.)

Case I.—William M'Culloch, aged 32, a carter, was admitted into No. 11 Ward of the Glasgow Royal Infirmary on the evening of August 13, 1844.

Three days before his admission, in the act of leaping from a cart, which was the foremost of a line of several, the patient's foot slipped, and he fell to the ground upon his back. While in this position, the wheels of three waggons passed between his legs, and over his left groin and thigh. His chief complaint, after the accident, was of pain in the perineum and above the pubis, with a constant desire, but complete inability, to pass his urine. The treatment consisted of bleeding from the arm, and by leeches to the parts affected. His bowels were freely moved by medicine.

On his admission, he still complained of pain in the perineum; his countenance was anxious, and his respiration rapid; pulse 113, feeble. There was livid ecchymosis of the skin on the inside of the left thigh and groin, as also of the scrotum and penis. The cellular tissue of the upper part of the thigh, scrotum, and perineum, especially its left side, were much swollen, and communicated such a sensation as if the parts mentioned were distended with air and fluid. It was not at this time judged prudent to make such an examination as could enable us to detect fracture of the pelvis; but this being strongly suspected, perfect repose in the easiest position was enjoined, fomentations were assiduously applied to the injured parts, a Dover's powder was given, and wine was cautiously administered. The catheter was introduced with ease, and apparently into the bladder. A considerable quantity of bloody fetid urine flowed by it, and the patient felt much relieved.

Next day this state was much the same, but easier, on account of the frequent introduction of the catheter, by which a very little urine was on each occasion allowed to trickle away. A free incision was made by the late Dr. Hannay, then surgeon to the hospital, on the left side of the raphe, and at the anterior part of the perineum. Thirty-two ounces of fluid, which had a strong urinous odour, were thus evacuated; and, when the finger was introduced into the wound, the ramus of the pubis could be felt fractured about its middle. The patient is reported to have experienced much relief on the evacuation of this urinous fluid. Pulse still continued quick and feeble, and his other symptoms indicated much general prostration. It is also reported that the sensibility of the lower extremities remained unimpaired.

On the 15th, the hospital report is as follows:—"Urine flows freely by the wound. Feels and looks relieved. Ends of bone (viz. of pubis, felt through the wound) at a distance from one another, and distinctly moveable. Tongue clean and moist. Pulse 90, improved in strength. Natural movement of bowels. Patient can raise lower part of body in bed.

Next day he was ordered six ounces of whiskey, instead of his wine; but there is no report until the 24th, when it is said that the "patient has had several rigors, followed by heat of skin. Pulse rapid, small, and weak. Complains of thirst and of weakness only. Bowels free; tongue moist, and slightly white. Urine flows freely by the wound, and a considerable extent of the ischium is exposed, by sloughing of the cellular tissue."

Dover's powder at night was substituted for the camphor and opium.

Next day (25th) it is reported that there is extensive sloughing of perineum and over sacrum; but that, in other respects, the patient is not worse.

27th. Debility and exhaustion increase. Respiration 40 per minute. Pulse scarcely to be felt, and tremulous.

He died next morning.

29th. *On inspection*, much effused blood was found beneath the pelvic fascia, and in the folds of the meso-colon and meso-rectum. The bladder was found ruptured obliquely through the left side of its neck, and below the reflexion of the peritoneum, which constitutes its lateral false ligaments. The coats of the bladder were thickened and inflamed. The rupture was a clean rent through both coats, and admitted three fingers. It opened into what appeared a large abscess, stretching up behind the bladder, and between it and the sacrum. The incision had been made into this cavity. The urethra was sound and uninjured throughout its entire length.

The left sacro-iliac synchondrosis was completely separated, and the left side of the body of the pubis was fractured close to the symphysis. The left ramus of the pubis and ischium was also fractured, and the fracture extended into the acetabulum. The tuberosity of the ischium was completely separated from the body of the bone. The cavity of the left acetabulum contained a quantity of purulent matter, and its lining membrane presented the usual appearances of high inflammation.

On the right side of the pelvis, the only injury was an oblique fracture of the ramus of the pubis, without any displacement.

At the lower margin of the right lobe of the liver there was a small deposit of purulent matter. Other organs were quite healthy.

Case II. — George Bell, aged 27, an engineer, was admitted into ward No. 11 of the Glasgow Royal Infirmary, on the 14th March, 1846, at nine and a half p. m. (Dr. A. Buchanan was at this time surgeon to the hospital.) Half an hour before his admission the patient was at work beside the steam-engine which he had charge of, when his left foot was caught by the fly-wheel, and he was drawn in among the machinery. The foot passed between two spokes, and the whole force of the revolving-wheel came upon his leg, which was pressed against the belt, and the engine thus stopped. But before that was effected, his right leg had been twisted upwards, and he had received a violent blow at the lower part of his back from the main-shaft of the engine.

On examination, it was found that the patient had suffered a severe compound fracture of both bones of the left leg, which was immediately attended to.

He complained much of pain at the right sacro-iliac synchondrosis, especially when the limb of that side was moved; and, with the exception of being able to draw up the leg a little, he had no power of moving it. The posterior part of the right ilium was felt to project more than that of the other side, and it was more moveable on the sacrum, which seemed at a relatively greater depth from the surface of the back. In short, there appeared to be displacement of the sacrum forwards, and of the ilium backwards, on the right side.

Patient had an uneasy and ineffectual desire to micturate. Some bloody urine was drawn off by the catheter. His face and surface generally were pale and cold. Pulse quick and feeble.

He had been in perfect health up to the time of the accident.

Next day the patient was still very uneasy, and evidently feebler. He was unable to micturate by voluntary effort, but felt much relieved by the frequent introduction of the catheter; on which occasions small quantities of slightly bloody urine were usually evacuated.

The evident indications of supporting the failing strength, and allaying the sufferings of the patient, were attended to, but without avail, for next morning he was found sinking fast, and he expired at six p.m.

17th. On inspection of the fractured leg, it was ascertained that the posterior tibial artery was sound, but that the perineal was ruptured.

On examining the abdomen, the bladder was found ruptured at its fundus, so as to admit three or four fingers. The rupture was transverse, i. e. nearly parallel to the transverse diameter of the pelvis, and its edges were clean. A very small quantity of urine was found in the peritoneum; of which that part which lines the pelvis was much injected. A large quantity of blood was effused into the interior of the pelvis, and into the substance of the muscles at the lower part of the abdomen, as well as between them and the peritoneum. The other abdominal organs were healthy.

The right ilium was quite separated from the sacrum at the synchondrosis, and the pubic ligaments were also ruptured, so that the os innominatum was thus completely detached from the rest of the pelvis.

On these cases Dr. Watson remarks as follows:

The first point of interest in these cases is the mechanical cause of the rupture in the coats of the bladder.

Dr. Harrison, in his excellent paper "On Rupture of the Bladder," contained in the ninth volume of the 'Dublin Medical Journal,' p. 349, states two causes of this lesion, to which he refers all recorded cases of it. His words are—"Every case on record has been the result either of some force directly applied against the abdomen, such as a blow or fall against some resisting body, or of a fall from a height, causing a general concussion of the whole frame." We think it will not be difficult to show that the above cases resulted from neither of these two causes; and it will be equally easy to point out a different, but a very obvious and sufficient, cause for the lesions sustained.

In the first of them the force was not applied directly against the abdomen, but across the groin; neither does it seem that the bladder was ruptured by the general concussion, which, no doubt, was caused by the fall from the cart; for in all recorded cases of this last-mentioned kind, viz. those in which rupture has resulted from "a general

concussion of the whole frame," the seat of the rupture is at the base of the bladder. But the situation of the rupture in the case under consideration was very different. It was in the neck of the bladder, and at that part of it, too, which exactly corresponded in position, extent, and direction to the loosened part of the pubic bone.

In the second case, that of George Bell, the force which caused the rupture acted from behind. It is somewhat difficult, however, to determine precisely how the blow operated, whether by producing a general concussion of the whole frame, or by causing the bones to impinge directly on the base of the bladder. We think, however, that the nature of the accident, and its obvious effects, sufficiently prove the latter supposition to be correct.

In both of these cases the accident was of a very severe kind, and the nervous shock proportionately great; but the progress of the cases was by no means such as it would have been had the bladder remained entire. The prominent symptoms in both cases were those occasioned by the lesions of the bladder, and yet their character and course were materially different.

As regards the case of the man M'Culloch, we unfortunately cannot speak with precision of the state into which he was immediately thrown by the accident, seeing that he was not admitted into the hospital until three days thereafter; but, judging from the severe antiphlogistic treatment which he appears to have required, and to have borne, his state must have been one much more acutely inflammatory than that of George Bell. The latter, indeed, never recovered from the nervous prostration caused by the effusion of urine into the peritoneum, combined with the shock of the accident. The latter, although severe, would not, we think, have been adequate to the effect produced, had not the former concurred with it. The patient in this case lived forty-five hours, and expired without exhibiting the slightest symptom of reaction. Such a termination of the case will not astonish any one, however, who remembers the effect of a foreign fluid in the peritoneum, especially when of an irritating nature, and suddenly introduced, as was the urine in this instance.

M'Culloch, the subject of the other case, lived for eighteen days after the accident. The " shock" which he received at first was not indeed so severe as that under which the other man sunk, but the injury to the pelvis was much greater. The true explanation of the great difference in this respect between these two cases is to be found in the fact, that in the latter the urine was not, as in the former, discharged into the peritoneum, but into the muscles beneath it. Inflammation, suppuration, and sloughing ensued, the tendency being towards a natural cure by external opening of the abscess. This effort of nature was duly aided by surgical interference; and there is little doubt in my mind that this patient would have ultimately recovered, had he not fallen a victim to that mysterious disease phlebitis, which was then prevalent in the hospital. In his 'Pathology and Practice of Surgery,' Mr. Syme has lately recorded an interesting case of rupture of the neck of the bladder, from direct violence applied above the pubis, and without fracture of the pelvis. The skin was freely incised in the place indicated, the patient's strength was supported, and after a critical

illness, he recovered in about six weeks. This, we believe, is one of the only two cases on record of recovery from rupture of the bladder. The true principle of prognosis in these cases has been laid down by the same high authority, that "if the rupture takes place above or within the reflexion of the peritoneum, there cannot be the slightest chance of escape. But if the rent is at the anterior part, so as to discharge the contents of the bladder by a sudden gush into the cellular substance, and condense it in such a way that only the portion in contact with the urine may be deprived of life, it appears that the patient may be saved by timely incisions." This latter observation is equally applicable to such cases as that of M'Culloch, formerly related, the only difference being in the position of the rupture, viz. in the side rather than in the front of the neck of the bladder. Mr. Syme, in penning the remark, obviously referred to cases similar to his own, in which no fracture of the pelvis existed; and, in these circumstances, the only part of the bladder which could suffer rupture without involving the peritoneum is the anterior part of its neck. But in cases of fracture of the pelvis, a large portion of the sides, and of the inferior part of the bladder, is liable to rupture, while the peritoneum may not be injured.

In regard to treatment as well as to prognosis, cases of rupture of the bladder are divisible into two classes, viz. those within and those without the peritoneal sac. The great feature of treatment in the former class of cases is incision for the relief of the extravasation, which is the immediate consequence of such ruptures.

The question now naturally occurs, What is the treatment proper for intra-peritoneal rupture of the bladder? or, Is there none? Dr. Harrison recommends tapping of the peritoneum from the rectum; but the operation has not been tried. Certainly, if such an operation is to be at all successful, that must be the situation of the opening into the peritoneum. There could be no expectation of benefit from paracentesis in the usual place, where it was performed in two fatal cases of this kind, mentioned by Dr. Harrison. This practice seems to me well worth trying in all such cases in which the bladder is reported to have been much distended at the time of the accident. It can add nothing to the danger of the patient, and seems to give him the only chance of life.

The difficulty of diagnosing between these two sets of cases is often extreme; but perhaps the absence of every symptom except those of rapid failure of the vital energies contrasts sufficiently with the phenomena, more or less apparent, of acute peritonitis, to enable the observer to distinguish, in most instances, those in which there is much from those in which there is little urine effused into the peritoneum. In the latter class of cases, the ordinary constitutional treatment of acute peritonitis—venesection, if the patient is seen in time, the free administration of calomel, opiates, and warm-water enemata, with fomentations to the abdomen and complete rest, must be relied upon alone; nor ought such means to be neglected in the former class of cases, whatever else may be done for the patient. It is but too likely, from the nature of these cases, that if the patient live long enough stimulants may be proper; but they should be given with great care, and

watchfulness as to their effects. In all such cases the anxiety of the surgeon will naturally be directed to the prevention of the accumulation of the urine in the bladder, which, if it did occur, even in a small measure, might endanger a new effusion of urine into the abdomen. This indication will be fulfilled, so far as possible, by the frequent introduction of the catheter, or, if the patient bear it well, by leaving a gum catheter in the urethra, care being taken not to push it beyond the neck of the bladder, lest, by adding a new cause of irritation, the existing inflammation be increased or renewed.

ART. 36.—*Case of Incomplete Reduction, en masse, of an Inguinal Hernia, with Remarks.* By JAMES REID, Surgeon.

(*Prov. Med. and Surg. Journal*, Jan. 24, 1849.)

The reduction of a hernia, "en masse," with its peritoneal investments, by the taxis, and the appropriate mode of treatment, has until the last few years rested almost entirely on the authority of foreign surgeons. Mr. Luke was the first in this country to make the occurrence the subject of a particular treatise. Since his excellent paper, founded on the experience of five cases, was read before the Medico-Chirurgical Society, and published in their 'Transactions,' notices of three other cases have appeared in the English journals. The hitherto supposed rarity of the accident has therefore much diminished, and the influence that the probability of its occurrence should exert during the investigation of an obscure case in which symptoms of strangulation exist, has become more recognised. Under present circumstances. however, every additional case may be viewed with interest, and may assist in confirming or elucidating the information already obtained upon the subject. It is with this view that I am induced to publish the following case of incomplete reduction "en masse."

J. H——, a strong, active, old man, aged 75, was admitted under my care into the Kent and Canterbury Hospital, with symptoms of strangulated hernia. He had been subject to double inguinal rupture, partly occupying the scrotum, for which he had worn a truss forty years; and more recently to a protrusion, the size of a walnut, at the navel. The right inguinal rupture had appeared some few years after the left, and had troubled him most, having on one occasion become incarcerated for several days, occasioning constipation and vomiting, and being at length reduced with difficulty. Two days previous to his admission into the hospital, he exerted himself more than usual in spearing for eels; feeling afterwards indisposed, he went to bed sooner than usual, and was soon attacked with severe pain in the abdomen, followed by vomiting. He then discovered that the rupture had descended, and made ineffectual attempts to reduce it. The next day he renewed the efforts, applying for that purpose a hot tile, and making pressure upon it. After an attempt continued for some time, the swelling was reduced in size, and he considered that he had returned it, but the symptoms still continued. A medical man was now sent for, who detected a small swelling in the situation of the inguinal canal; an attempt was made to reduce it, and purgatives were administered.

He was admitted into the hospital forty-eight hours after the occurrence of the first symptoms. The countenance was anxious; there was constant vomiting, accompanied by hiccough; the matter thrown up was the contents of the small intestine; the abdomen was distended, but not tender, except in the immediate neighbourhood of the right inguinal region; there had been no action of the bowels for forty-eight hours. Tongue stained by the matter vomited; pulse of natural frequency, full, intermitting; the radial artery felt ossified. About the situation of the right internal abdominal ring, there was a small diffused swelling (better, perhaps, described as a fulness of the part), so ill-defined that it was said, at first, there was no protrusion; however, on comparing it with the opposite side, and pressing in the fingers around it, the tumour was more readily detected. Pressure upon the swelling produced pain, and caused it to recede; but it returned immediately upon the pressure being relinquished. A lump, feeling like a loose sac containing omentum, occupied and extended from the external ring.

The taxis in the warm bath, a turpentine injection, &c., producing no change, an operation was determined upon. An incision was made opposite the internal ring directly over the swelling, and continued parallel to the inguinal canal. The tendon of the external oblique, the fibres of the internal oblique and transversalis, each, in distinct layers, were divided, and a hernial tumour, the size of a large walnut, was exposed in the upper part of the inguinal canal. A portion of small intestine, of a dark colour, but reserving its natural lustre, and a small quantity of dirty fluid, were found in the protruded sac. This portion of the sac was but a small part of the whole; the remainder was situated within the abdomen, so that it required the full length of the index-finger (a middle-sized one), to reach the seat of stricture—the neck of the sac. It was necessary before dividing the stricture, to obtain more freedom by incising the lower edge of the abdominal muscles in a direction across their fibres, and, in order to prevent the neck of the sac receding from the finger, to have it held by the divided edge. The nail of the fore-finger was then, with difficulty, insinuated between the intestine and the stricture, and the latter was divided. Although the finger freely entered the abdomen through the neck of the sac, some obstruction opposed the return of the intestine. A resisting band was felt, situated to the inner side of the neck of the sac, between which and the abdominal parietes the intestine was pressed, and could be felt passing towards the mesial line beyond the reach of the finger; it was dislodged from this situation, and pushed back into the abdomen. The wound was closed, and a bandage applied. The further details of the progress of the case, until the patient's death, are briefly these:

No immediate relief was afforded by the operation; partial quiet and alleviation of symptoms were obtained by an opiate administered directly after; the vomiting continued, and constipation remained. No satisfactory action of the bowels was obtained by the free exhibition of enemata, thrown up with the long elastic tube introduced to its full extent. Symptoms of peritonitis were established (in spite of remedies) twenty-four hours after the operation, and in thirty-six

hours evidences of failing vitality appeared; gangrene of the posterior part of the scrotum was discovered, and in the course of twelve hours it spread over the scrotum, penis, lower part of the abdomen, and upper part of the thighs. The patient died in rather more than forty-eight hours after the operation.

Post-mortem examination thirty-six hours after death.—The gangrenous integument was distended with gas. The layer of adipose tissue was thick; the edges of the wound not adhering. There were evidences of general peritonitis, which were most marked in the right inguinal region, where the convolutions were glued together by recently effused lymph. The portion of intestine that had been strangulated, consisting of nearly a foot of the upper part of the ileum, was dark-coloured, almost black, covered with patches of recently effused lymph, puckered up in the position it must have assumed in the sac, and deeply marked by the stricture, having an additional depression, partly encircling it below the indenture. The position and relation of the sac will perhaps be better understood by describing it as forming a double pouch, with a common neck and opening; a smaller pouch, about one fifth of the whole, partly within the abdomen, and partly protruding through the internal ring; and a second and larger pouch, placed nearly at right angles to the former, and extending from the inner side of the internal ring between the peritoneum and abdominal parietes. The cord of the obliterated hypogastric artery had been separated from its natural position on the inner side of the internal ring by the interposition of the larger pouch. It was this which formed the resisting band felt during the operation, and which had caused the second mark upon the portion of intestine that had been strangulated. The sac was readily drawn out from its double position, and then formed a simple bag. The outer side of the neck of the sac was only slightly separated from its connexion with the abdominal parietes. The substance which had been felt at the external ring proved to be a mass of fat, connected by a long pedicle, extending up the inguinal canal to the exterior of the protruded portion of the sac.

Mr. Luke, in his observations, says "that the firmness of the adhesion of the parts in which a hernia is imbedded, bears no proportion to the duration of the hernial protrusion." This remark is of great importance in relation to the efforts that it is safe to make in reducing a hernia by the taxis, both as regards the degree of force to be used, and the period to which it may extend. The evidence furnished by the present case is not very satisfactory on this point, as I could not obtain from the patient a very clear detail of what had previously occurred. As far as I could ascertain, the force used was not sufficient to cause much pain, the reduction of the swelling was perceived by a gradual diminution in its size, not by any sudden decrease. There was no appearance of injury or bruising of the integuments in the neighbourhood of the swelling when he was admitted into the hospital, and the intestine also was free from ecchymosis. On the whole, I am inclined to the opinion that the reduction was effected *more* by the continual employment of a degree of force, not injurious perhaps in itself, than by any one or more undue violent efforts.

My first conclusion with regard to the nature of the present case was, that a scrotal rupture had been partly reduced, a portion of intestine remaining in the inguinal canal, constricted in some manner at the external ring. This opinion was founded on the evidence of the indefinite swelling, the form a protrusion assumes when small and confined to the inguinal canal, and the pressure at the external ring of what I thought was a hernial sac. The ready yielding of the tumour and its reappearance raised a difficulty to such a diagnosis, and a suspicion of the real nature of the case was then entertained; but the supposed sac at the external ring was an obstacle to such a view of the matter. The clear indication, under existing circumstances, was to cut down on the swelling in the canal, and explore the mystery. The formation of fat about the sacs of old herniæ is mentioned by some authors on hernia.

I have, since this case occurred, noticed a similar mass of fat appended to an old scrotal hernia that became the subject of a *post-mortem* examination; it was uniformly attached to the sac, though easily separable, and might have been left behind in the reduction of the sac, in the manner that I conjecture the mass in the present instance to have been. More recently, in operating upon a strangulated inguinal rupture, which had existed many years, and been operated on before, after I had divided a very thick layer of fascia, a mass was exposed, resembling at first sight omentum covered with a thin sac; it proved to be a layer of fat about one third of an inch thick, connected with the sac which was situated beneath it.

Mr. Luke, in speaking of the facts connected with reduction in mass, and the conclusions to be drawn from them, remarks, "that the presence of a sac, even without hernial contents, causes an abdominal fulness in the part, easily ascertained by examination. The absence of such fulness in a part where hernia is known to have previously descended, necessarily leads to the conclusion that the sac upon which it depended has been displaced, and probably returned, together with the hernia. The sac in inguinal hernia below the external ring, becomes united with the spermatic cord, whereby the latter is usually rendered indistinct and obscure. The absence of that indistinctness and obscurity implies the removal of the cause which previously produced them, and, therefore, that the sac has been displaced. The *continuance* of the indistinctness or obscurity leads to a directly *contrary conclusion*."

The present case shows that the conclusion to be drawn with regard to the presence of the sac, from the existence of a substance feeling like omentum in the situation recently occupied by a hernial protrusion, suspected to have been reduced in mass, should be received with some reservation.

Unconfirmed by other evidence, it cannot be viewed as a certain proof. In addition to this, the existence of depositions of fat in the cord often placed at the external ring, cysts of the cord, and varicocele, would cause a fulness and obscurity about it, which could not be distinguished from that occasioned by the sac, with or without some portion of its contents. The only effect, perhaps, of this uncertainty on practice in such cases, would be to afford additional reason for an

exploratory operation. The direction which the returned bowel with its investing sac took, to the inner side of the internal ring, is not that which appears generally to have been observed in inguinal hernia—viz. below the level of the internal ring towards the cavity of the pelvis, or else towards the outer side of the ring. The incomplete reduction of the hernia is in accordance with the results of the experiments made by Jules Cloquet on the dead subject—that "in external inguinal hernia the reduction is generally incomplete, and the swelling reappears as soon as the efforts at reduction are discontinued." I cannot help thinking that, in this instance, the obliterated hypogastric cord had some share in causing the small portion of the rupture to reappear when apparently reduced, and preventing the complete reduction of the whole. By the approximation of the internal ring, from the long continuance of the rupture, towards the obliterated artery, and by the interposition of the sac and intestine between the parietes of the abdomen and the peritoneum (the neck of the sac retaining its connexions externally), the inner edge of the neck and the obliterated artery would be forced in a direction backwards and somewhat outwards, so as to bring the latter more nearly opposite the internal ring. Its resistance, added to that afforded by the connexion of the peritoneum with the walls of the abdomen, would then form an obstacle to the complete reduction. Be that as it may, the cord of the vessel exercised considerable pressure, much more than might, *a priori*, have been anticipated. The difficulty in returning the intestine after the neck of the sac had been divided, and the mark discovered about the portion of bowel that must have occupied the large pouch, sufficiently show this. The manner in which the reduced portion of rupture was girt between the hypogastric cord and the abdominal parietes, would have prevented the reprotrusion of that part by the efforts of coughing and straining, as have been recommended, the effect of such attempts being to cause the cord to press more tightly upon the part it constricted. The depth from the surface at which the stricture was placed, and the obstacle the hypogastric cord occasioned to the return of the intestine, furnished the only difficulties in the operation. The return of the intestine might have been facilitated by dividing this cord if it could have been recognised; but then, it should be remembered that it is sometimes pervious by a narrow canal conveying blood for the supply of superior vesical arteries, and a troublesome, perhaps serious hemorrhage, might have resulted. The continuance of the symptoms of strangulation after the operation, was due to the portion of bowel not recovering itself after it was replaced.

ART. 37.—*Strangulated Inguinal Hernia returned en masse by Taxis.—Operation required.* By M. HOMOLLE.

(*Union Médicale*, and *Monthly Journal*, Feb. 1849.)

Dr. Homolle details a case of hernia in which the tumour had been returned into the abdomen by the patient himself. The reduction was followed by symptoms of strangulation; and, notwithstanding all efforts of coughing, &c., the tumour could not be again made to descend

into the canal. On the evening of the second day from the return of the hernia, the symptoms became urgent, and M. Robert was called in consultation, when an operation was agreed on as the only chance of affording relief. M. Robert proceeded to operate, and the following are the details of the operation:—"An incision was made through the integuments of the abdomen about 3½ inches long, nearly parallel to the ligament of Fallopius, and extending to just below the inguinal ring. The aponeurosis of the external oblique was divided along the whole extent of the external wound, and the finger was passed into the abdomen behind the inguinal region; by pushing aside the fibres of the internal oblique and transversalis, and by pressing back the peritoneum and the loose cellular tissue uniting it to the anterior abdominal parietes, M. Robert hoped to find the sac in the iliac fossa, and immediately behind the superior orifice of the inguinal canal, as had happened to him twice already under similar circumstances; but there was no appearance of it. After a long and painful search, we found the tumour behind the external border of the rectus muscle. It was rather glistening in appearance, and very moveable. M. Robert tried several times to seize it with the forceps and draw it out; but the very loose cellular tissue covering it, either escaped each time from his hold, or was torn without being drawn down. At length, however, after fits of coughing, which the patient courageously kept up for some minutes, it was inclosed slightly between the lips of the wound.

"M. Robert then divided the sac; it contained, along with a little serous fluid, a large and very red knuckle of intestine, and a pretty large mass of omentum in front of it. The sac was drawn out as far as possible, and freely opened with scissors, guided along the index-finger, and so by degrees the seat of strangulation was reached, and divided likewise. Whilst Dr. Homolle fixed the two lips of the sac outside by means of forceps, M. Robert endeavoured to return the intestine, which was accomplished with difficulty, and after some considerable time. The inflamed state of the omentum forbade its being returned; it was left out, and abandoned to the chances of suppuration and mortification, which generally overtake it in such cases. The dressing was very simple; a piece of linen, pierced with holes, was placed over the omentum, which was hanging between the lips of the wound; then a few pledgets of lint and a spica bandage. Ordered him a draught of syrup of peach blossom and castor oil, twenty grammes of each. He had a good night, no fever, got some sleep, and passed several watery stools. On the 9th of January the dressing was raised: there was a laudable and abundant suppuration. From this time the wound was dressed every morning; the omentum continued to suppurate and diminish in bulk. At the end of three weeks the wound was only two inches in extent; the digestive functions were perfectly re-established. After the sixth week the patient was able to be up; and at this day he walks about as well as ever, and experiences no inconvenience from the hernia, which is kept up by a bandage."

[Upon this case, the editor of the 'Monthly Journal' has the following remarks:]

This case is interesting in more than one point of view; but we

think it especially so, as directing attention to the question of operating in similar cases. The opinion very generally held hitherto on this subject has been—that where symptoms of strangulation follow the reduction of hernia by taxis, and where the tumour cannot be made to reappear by coughing or other expulsive efforts, that the cases are similarly circumstanced to those of internal strangulation from other causes; and the opinions as to the propriety or otherwise of operative interference have varied according to the views held regarding the general question of the propriety of gastrotomy.

But we believe that it can be shown that this opinion, as to the analogy between these two classes of cases, has been too hastily assumed; and, without offering any opinion as to the propriety of gastrotomy for internal strangulation, or in cases of intus-susceptio, we would merely point out, that cases like that of Dr. Homolle's patient differ materially in some respects from such internal strangulations or obstructions; and that the points of difference are of such a nature as to show the propriety of operating on the same general principles which warrant us in doing so in ordinary cases of strangulated hernia. The principal objection to operations in cases of internal strangulations, is the uncertainty—both as to the situation and nature of the obstruction—so that the surgeon may find, after opening the abdomen, that he either cannot ascertain or reach the seat of constricted or obstructed portion of bowel, or that, having found it, he cannot, from its very nature, relieve it by operation. But in cases where strangulated hernia is reduced *en masse* by taxis, there are two points which appear to us as obviously indicating the line of practice. The first is, that in such cases the strangulation can scarcely arise from any but one cause, viz. constriction by the neck of the sac; and the second, which follows from the first, is the comparative fixity of position of the hernial mass, owing to the connexions of the peritoneal sac; for when we reflect that the sac is formed by the parietal peritoneum, we at once see, that though the tumour be pushed back through the canal, it cannot be very far removed from its original position with regard to the internal opening, and that it will thus be retained within the reach of surgical interference; so that, whilst an operation affords the patient the only chance of relief, we have the advantage of a degree of certainty, both as to the position of the strangulated intestine and as to its cause; and for these reasons we consider operation in such cases not only warrantable, but imperatively demanded; and the successful results of M. Robert's operation will, we trust, lead to its general adoption.

ART. 38.—*History of a Case in which a Foreign Body lodged in the Œsophagus for nearly five months, and proved fatal by producing an ulcerated passage into the Trachea.* By ROBERT PATERSON, M.D., F.R.C.P.E.

(*Edinburgh Med. and Surg. Journal*, Jan. 1849.)

M. R., a stout, healthy, intelligent, and lively girl, of from 5 to 6 years of age, was amusing herself with some companions, in the beginning of November 1847, with a set of German toys. They had been manufactured into a tea-set, composed of plates, cups, saucers,

&c., the edges of which were roundly indented or scolloped, and the body of them hollowed out like shallow basins. While putting one of them into her mouth, one of her companions struck her under the chin, which caused her to swallow the toy. Being frightened at what had occurred, she immediately ran and informed her parents, and a neighbouring apothecary was immediately sent for. She had vomited, however, before he reached the patient's abode. He examined the pharynx and throat, and, finding nothing there, administered an emetic which speedily acted well. She afterwards swallowed some tea and bread, and ate it apparently with relish, swallowing it without the slightest difficulty. The same evening, about bedtime, she expressed to her mother the belief, that she had just swallowed the toy, for that she felt it distinctly pass downwards. After passing a rather restless night, she awoke next morning slightly feverish, and continued so for a few days. She never, however, complained of pain in the throat or the least difficulty in swallowing. The only complaint was a trifling degree of epigastric tenderness, which was attributed to the irritation produced in the stomach by the presence of the foreign body, which was supposed to contain, in addition to its amalgam of zinc, a small quantity of arsenic.

For four months after the occurrence above related, the child continued apparently quite well. She was lively, went to school, took her food as usual, and no change whatever was observed by her parents or friends upon her appearance, appetite, health, or habits. The foreign body, however, was not ascertained to have been passed by stool, although frequent purgatives had been administered for the purpose, and the egesta had been carefully and anxiously examined.

On the 22d of February, nearly four months after the swallowing of the toy which we have described, this child was suddenly seized with an attack of croup. She had been exposed to the damp air of the preceding night, to which her mother attributed the croupy attack. The symptoms were characteristic, and there was considerable accompanying fever. Leeches were applied to the throat. She had an emetic and the warm-bath; subsequently a blister was applied, and the prominent symptoms of croup disappeared. It was not till the second day after this attack that I was informed that she had been noticed to cough and eject whatever she attempted to swallow. This I at first attributed to the inflammation of the throat or of the upper part of the larynx succeeding the attack of croup. Next day, however, I had an opportunity of witnessing her attempt to swallow both liquids and solids. These were taken with avidity, but whenever they reached a certain point, violent coughing and ejection of the morsel or mouthful of fluid immediately took place. Although the symptoms of croup had now entirely subsided, and the breathing was quite soft and free, and unaccompanied with any roughness, still the pulse kept frequent, and the skin hot. The throat was carefully examined both internally and externally, and nothing could be seen or felt to account for the peculiar symptoms.

My friend Dr. Coldstream now saw her along with me, and, after careful and patient investigation of the anomalous symptoms presented, we came to the conclusion, that the peculiarly harassing symptoms of this

case must either arise from an œdematous state of the *rima glottidis*, from ulceration of the œsophagus itself, or from the foreign body still being present somewhere about the lower part of the pharynx or œsophagus. With the view of assisting our diagnosis as much as possible, we determined to pass the finger down the pharynx as far as possible, and if that did not yield any satisfactory result, to pass down a flexible tube into the stomach with the view of ascertaining if any constriction of the œsophagus existed, or if any foreign body still was lodging in it.

Dr. Coldstream and myself having both carefully examined with the finger the state of the pharynx and upper part of œsophagus, as well as the opening of the glottis, without being able to discover anything abnormal, a tube was then passed down into the œsophagus, which entered easily and proceeded rapidly at first, but was soon arrested by something, and on pressing it slightly onward, air began to pass through the hollow tube. The same result followed all the attempts made both by Dr. Coldstream and myself.

The diagnosis of this case now became a little more distinct. That an opening existed between the œsophagus and trachea was most probable; but whether this was the result of simple ulceration, or arose from the pressure of the foreign body, it was impossible to determine. The only course of treatment, however, which was left to us, was that of allaying irritation and supporting the rapidly-failing strength of our little patient. With this view, nutritious enemata, with small quantities of morphia, were repeatedly administered,—not a morsel of food nor a drop of fluid being apparently swallowed. She continued to be nourished pretty well at first. But soon the strength began to fail. Emaciation was rapidly increasing.

She became feeble, totally exhausted, and died calmly on the 20th day of March 1848, being twenty-six days from the occurrence of the sudden attack of croup, and nearly five months after the date at which the foreign body was accidentally swallowed.

The *post-mortem* examination revealed the true state of matters. The foreign body was found fixed in an opening between the œsophagus and trachea, about five inches down. The œsophagus was opened from behind. The *rima glottidis* and upper part of the trachea were quite healthy; but a short way down the œsophageal tube was seen the foreign body, and about a third part of it was inserted into an ulcerated fissure which communicated with the trachea. The fissure was about one inch and a half in length, with an inflamed margin; the mucous membrane around the foreign body was all more or less inflamed; the calibre of the tube beneath was much smaller than that above the foreign body. The tin saucer lay with its cup-like cavity upwards, completely filling the calibre of the œsophagus, and so placed, that, upon fluid being poured into its cavity, it at once trickled through the ulcerated opening into the trachea. The interior of the toy was incrusted, especially at the most depending part, with a white cretaceous-looking deposit, very similar in appearance to the urinary phosphatic deposit.

The *post-mortem* examination therefore explained, in the simplest and clearest manner, the symptoms presented by this somewhat singular case.

The foreign body, when first swallowed, had obviously never passed beyond the point at which it was found.

Its rough edges had been the means of arresting its progress downwards.

At first it must have been lodged in a somewhat upright position, to enable the boluses of food and the liquids drank to pass readily over its smooth convex or lower surface.

The ulceration had no doubt been proceeding slowly for some time; but on its suddenly causing perforation of the trachea, the attack of croup commenced.

On the occurrence of the perforation into the trachea, it is most probable that a certain change took place in the position of the foreign body. Its lower edge had slid forward into the ulcerated opening, and the body of it had fallen backwards, thus filling completely the calibre of the œsophagus, and presenting its cup-like cavity upwards, or rather in a slanting direction.

It may be remarked, in conclusion, that two circumstances, both clearly pointed out, might have been had recourse to, with the prospect of relieving the patient and prolonging her life.

First. A pair of œsophagus forceps might have been introduced, and the foreign body caught hold of and extracted.

Secondly. It was a good case for the operation of œsopohagotomy, had the former not been practicable.

In addition to both of these circumstances, I would remark, that the swallowing and progress of the foreign body was veiled in much obscurity. There was probable reason to believe, that it had been perfectly swallowed, and, although not passed by stool, it might have been lodging in the stomach or some other part of the intestinal canal. The child was perfectly well, playful, and happy, eating and drinking with appetite, until the sudden occurrence of the croup, and which, too, came on, let it be remembered, after exposure to cold and damp. Further, even after the flexible tube was passed into the œsophagus, it could not be determined that it came against a foreign body, but only seemed to be slightly arrested, and the air then passed through it. This was accounted for by the cup-like cavity of the foreign body having been found filled with the remnants of the food attempted to be swallowed. There was no pain externally, or swelling in any part of the neck. The foreign body, in fact, lay immediately behind the upper part of the sternum. (See Report on the Progress of Surgery in this Volume.)

Art. 39.—*A Case of Suffocation from the Closure of the Glottis by a Piece of Meat.* By Richard Payne Cotton, M.D.

(*Medical Gazette*, Dec. 8, 1848.)

A maid-servant, aged 23, in the family of a well-known surgeon at Kensington, was waiting at dinner, and after removing one of the dishes, ran hastily into the kitchen, in a state of extreme distress, which she was unable to explain otherwise than by pointing to her throat: in a few moments she fell upon the floor struggling violently, and in another minute was dead.

An opening was made with all possible expedition through the crico-thyroid membrane, but the moment when this might have saved, her life had unhappily fled. All was conjecture as to the cause of this painful event: the throat was examined without leading to an explanation; on looking into the mouth nothing but a large amount of saliva and mucus could be seen; and, although there was a suspicion of the real history of the case, nothing could decide it prior to the *post-mortem* examination.

On the following day, by an order from the coroner, I proceeded to examine the body, when the following appearances presented themselves:

The face and neck were much congested, and of various shades of blue and purple, and the superficial veins generally distended with very dark blood, whilst the intervening skin was pale and flaccid.

Both the abdominal and thoracic cavities were in a healthy condition, but the organs within them greatly engorged with a dark fluid blood.

On removing the larynx, with the neighbouring parts, a piece of meat, weighing about six drachms, was found firmly wedged in between the alæ of the thyroid cartilage, pressing the epiglottis downwards, and the arytenoids forwards, so as completely to close the opening of the glottis; the former was somewhat twisted upon itself, in such a way that whilst one of its lateral margins was pushed downwards upon the posterior surface of the latter, the other was turned upwards, as if from a violent expiratory act, taking place probably as a last effort. The morsel was so firmly pressed forwards beneath the base of the tongue, that had the mouth been opened during the struggles of the patient, it would certainly have escaped notice; and a probang passed down the œsophagus might easily have slipped over it unobserved. The piece of meat was of a triangular shape, and placed with the apex forwards, the base of the triangle measuring two inches and a quarter, which will sufficiently account for it not passing the thyroid cartilage, the width of which, at the commencement of the superior cornua, does not commonly exceed an inch and a half, and is not very readily extended.

Although this case adds to the number of those chiefly interesting from its rarity, it is not without its practical lesson. Where sudden asphyxia occurs under similar circumstances, a recollection of it might lead to suspicion of the cause, and the life of the unfortunate person be preserved.

I think that in most instances it would be found an extremely difficult operation to remove the morsel with the fingers or forceps, and the attempt might increase the spasm, and be the means of losing the few precious moments at our disposal; certainly, in such a case as the present one, it would have been useless, even had the meat been less unfavorably situated, both from the urgency of the symptoms, and the violent struggles of the patient. I believe that laryngotomy or tracheotomy would be the proper practice, and might be performed with the less hesitation from the comparatively little risk attending it, as the opening could be closed very shortly after the real cause of danger had been removed, and which the operation itself might effect by admitting air from beneath, and thus forcing up the epiglottis.

It is an interesting question, whether the presence of foreign bodies lodged in the pharynx or upper part of the œsophagus, and pressing more or less upon the larynx or trachea, can produce suffocation by the supervention of spasm.

All the fatal accidents from imperfect deglutition on record, with, perhaps, one exception, have resulted from mechanical closure of the glottis; and as there is abundant evidence that pressure upon the vocal apparatus, produced by tumours, or foreign bodies lodged about the thyroid cartilage, has given rise only to stridulous breathing, far short of threatening suffocation, it may, perhaps, be inferred that, as a general rule, spasmodic action of the glottis, unless caused by a severe amount of obstruction, is insufficient to cause death. The truth can be ascertained only from experience; but the cases hitherto supposed to show that mere spasm may be fatal, are far from conclusive on the point. In that referred to above, and which is recorded in the second vol. of the 'Dublin Hospital Reports,' although but slight pressure existed upon the trachea, the right subclavian artery, which took an irregular course, was wounded by a piece of bone, and the consequent effusion of blood into the cellular membrane of the neck must have greatly complicated the result. Dangerous spasm would, of course, be less likely to result from tumours, in consequence of their gradual development; and in the case of foreign bodies, much might depend upon their position. If upon, or closely bordering to, the aperture of the glottis, a permanent spasm would be likely to result from the reflex attempt to resist their entrance, similar to what occurs from the presence of irrespirable gases, and in drowning; but if at a lower point, the muscular movements would more probably be of an irregular kind, chiefly directed to their dislodgment, and not so particularly to the protection of the glottis. As the matter, however, can be decided only by an examination of cases, and these are, happily, not very common, I considered the present one should be recorded; for although it does not deny the possibility of spasm, it contributes to the list of the few already known in which such did not produce the fatal result, and may thus afford negative evidence that death in such cases is comparatively rare from that cause.

SECT. III.—TREATMENT OF SURGICAL DISEASES.

Art. 40.—*Farther Observations regarding the Use of Collodion in Practical Surgery.*

[In the last Volume of this Journal we published an abstract from the 'American Journal of the Medical Sciences,' April, 1848, regarding the employment of this newly-discovered adhesive fluid, as a substitute for sutures and adhesive straps; and in our Report on the Progress of Surgery, in the same Volume, Mr. Ancell entered very fully into the advantages of this new mode of dressing, and the method of applying it; and to these two articles we beg to refer our readers. The importance of the discovery, however, induces us to subjoin, from the February number of the 'London Journal of Medicine,' the fol-

lowing summary of what has been written regarding its various practical applications in surgery; nor have we deemed it advisable, with a view to a complete summary of our present knowledge on the subject, to omit one or two slight repetitions of facts already noticed by Mr. Ancell.]

1. *In wounds, ulcers, and other external lesions, it has been employed with great success.* In the 'American Journal of the Medical Sciences' for April 1848, its discoverer, Mr. Maynard, of Boston, states that Dr. Whitney had employed it in the removal of a wen from the head. To obviate the occurrence of erysipelas, from the presence of sutures, Dr. Whitney shaved the hair from the scalp, and by means of the cotton solution, glued some pieces of sheepskin on each flap, at a short distance from the wound. These straps were then brought together, and retained in their position by sutures. The wound healed favorably; and pain and the usual accidents arising from the presence and removal of sutures were entirely obviated. Mr. Maynard also mentions that Dr. Comstock, of Wrentham, U. S., "has recently employed this liquid as a dressing, in a case of extensive laceration of the perineum, with a success that, he thinks, never attended any other mode of management. The dressings remained firmly attached, and solid, during the process of healing, notwithstanding they were for a time almost constantly covered by urine and mucus, and subject to being displaced by the motions of the patient." The 'Monthly Journal of Medical Science' for July 1848, contains a report of a paper "On Solutions of Gun-cotton, Gutta-percha, and Caoutchouc, as Dressing for Wounds," read by Dr. Simpson before the Medico-Chirurgical Society of Edinburgh. He had employed collodion, with perfect success, in some cases of painful fissure at the base of the nipple. Having brought together the edges of the wounds, he applied the collodion, which formed a protection against all irritating influences, and permitted the child to suck, without causing, as it previously did, pain to the mother, or disturbing the dressing. The healing process took place rapidly. Mr. Erasmus Wilson (Lancet, Nov. 18, 1848, p. 553), says, that in two instances of chapped nipples, in which he used it, it seemed to "work a charm upon the painful skin. The gaping cracks were instantly drawn together, and almost obliterated, by the contracting power of the remedy; and were effectually shielded from the influence of moisture, and the pressure of the gums of the infant, in consequence of the rapid evaporation of the ether in an instant of time." Dr. Simpson also mentions, in the above-cited communication, that, in a case where Professor Miller had removed a portion of necrosed bone from the lower jaw, he (Dr. Simpson) dressed the wound with collodion, with the effect of retaining its edges in apposition. Mr. Brown made a communication to the Westminster Medical Society, Dec. 3, 1848, stating that he had used collodion, with advantage, in cases of sore nipple. (Lancet, Dec. 23, 1848.) The 'British-American Journal,' for August 1848, states that Dr. Payne, dentist, of Montreal, appears to have suggested the use of the collodion in burns; and Dr. Crawford, of the same city, employed it in the case of a young gentleman who met with a severe burn of the face and hands. The burn was covered with a thin glazing, which completely excluded the air, and the pain almost

immediately subsided. Its utility in burns has been confirmed by other practitioners. In the 'Dublin Medical Press' for October 4, 1848, Dr. T. R. Mitchell gives the result of his experience of the use of collodion in ulceration of the os and cervix uteri. He considers it greatly superior to nitrate of silver for forming an artificial covering to the ulcer, and permitting the healing process to go on underneath. The ulcerated surface being wiped clean and dry with soft lint, the solution is rapidly applied with a camel-hair pencil, and allowed to dry; a second, third, and fourth coating, if necessary, can then be applied. The first application is attended with a slight burning sensation, caused by the ether, followed by a sensation of coldness, from its evaporation. The application requires to be renewed at the end of forty-eight hours, as the mucus collects beneath the dressing, and raises it. In cases of simple abrasion, three dressings have proved sufficient; in more obstinate cases he has employed caustics first, and then covered the eschar with collodion, thus curing extensive ulcers in half the time required by other methods. He has also found it beneficial in cases of vaginitis without ulceration. In the 'Annales de Thérapeutique' for September and October 1848, p. 241, it is stated that M. Jobert, of the Hôpital St. Louis, and M. Robert, of the Hôpital Beaujon, have successfully employed it as a dressing for wounds made in operations. Dr. Yvonneau, jun., of Blois, communicated to the 'Union Médicale' for Nov. 18, 1848, the particulars of a case in which he had employed collodion, with an amount of success exceeding his expectations. The patient, a child of five years old, had extensive fistulous ulceration of the right cheek, permitting the escape of saliva, as well as of food and drink; the cheek had also contracted very firm adhesions with the gums of both jaws. After an ineffectual attempt to remedy the mischief, by a common mode of operation and dressing, he determined, as a last resource, to try the effect of collodion. Having obtained anæsthesia by means of chloroform, he carefully brought together the edges of the wound, and retained them in their position by long and firmly agglutinated bandages, passing completely over the chin, upper lip, and ala nasi. Over the whole he applied a layer of collodion, which, besides its adhesive property, completely protected the dressings from the saliva and food, which had been the main causes of the failure of the former operation. At the end of three days a slight displacement of the dressings rendered readjustment necessary, when the edges of the wound were found united to a considerable extent. On the eighth day the dressings were again removed; when, in place of the enormous fistulous opening, only a small cicatrix was found, which at length almost disappeared. The collodion, in this case, appears to have been of service, not only in preventing the dressings from imbibing fluid from without, but also by preventing the escape of saliva externally through the wound. The healing process does not seem to have been retarded by its presence in the interior. M. Yvonneau is of opinion that collodion might be advantageously used in the operation for hare-lip. He also states that he employed it in a case of wound of the first joint of the thumb, with disease of the ends of the bones, produced by the bite of an ass. Having performed resection of the diseased ends of the bones, he retained the thumb in an immoveable position, by means of linen bandages soaked in collodion.

The result, however, he was unable to state, as the patient was still under treatment at the time of his making the communication. In the 'Lancet' for Dec. 9, 1848, we find that Mr. Tucker, of Berners street, had been successful in restraining severe hemorrhage from leech-bites by means of compresses of lint dipped in collodion, and applied to the bleeding orifices. Where oozing appeared, the solution was applied by means of a camel-hair pencil; it was also applied freely round the edges. In the same journal, for January 6, 1849, Mr. R. T. Wylde recommends it in the hemorrhage from leech-bites. Dr. W. H. Ranking, of Norwich (Lancet, January 13, 1849), says that he has caused it to be applied, with much advantage, to the incisions after cupping. Dr. Muirhead, of Glasgow (Lancet, January 27), says that he has seen great benefit arise from its use in bed-sores.

2. *Cutaneous diseases.*—Mr. Erasmus Wilson has employed collodion with great benefit in these affections. In the 'Lancet' of Nov. 18, 1848, he describes the case of a young lady, "who had been suffering for many years with scrofulous ulceration of the skin, in various parts of the body. She had been under my care," he says, "for several months, and the sores were much improved; but they were nevertheless very far from being healed. The diseased skin had the appearance of being wormeaten, its hollows were filled with pus, which burrowed under the surface, and it was moreover thickened and congested. By the constitutional treatment which I had pursued, I had, to a great measure, corrected the pyogenic tendency of her system; but I felt the want of a local remedy that would serve as an impermeable covering to the surface—in fact, take the place of the lost epidermis, and act the part of an artificial scarf-skin. I had tried vulcanised caoutchouc spread with adhesive plaster, gutta-percha, nitrate of silver, astringent solutions, ointments, and pressure by bandages in vain—the remedy was not as yet found." Having received some collodion from Messrs. Bell, of Oxford street, he determined on applying it, and "on the next visit of the patient removed the dressings from the sores, and pencilled them over with the new agent, which covered the surface with a powerfully adhesive film, of about the thickness of gold-beaters' skin, and effectually represented the lost scarf-skin. A piece of dry, soft linen was the only additional covering required; and she left me, much delighted at the abandonment of the local applications and bandages. This young lady has since continued to apply the collodion herself, night and morning, until the present time, when the sores are nearly well, and the congestion and scrofulous thickening of the skin almost gone." Mr. Wilson says further: "The diseases of the skin in which I have hitherto used the collodion with advantage are chronic erythema of the face, intertrigo, chapped nipples and chapped hands, herpes labialis, preputialis, and zoster; lichen agrius, lupus non exedens and exedens, acne vulgaris, and several affections of the sebiparous organs. In chronic erythema of the face its contracting power was most usefully evinced, as it was also in lupus non exedens and acne. In a troublesome case of chapped hands and fingers, resulting from chronic lichen agrius, the collodion acted, not merely as a protective covering, but also promoted the healing of the cracks more quickly than the remedies I have been in the habit of

employing. In four instances it immediately put a stop to herpes labialis, and in a very severe attack it showed itself to be a powerful and useful remedy. Small superficial ulcerations of the corona glandis and prepuce, caused by excoriation, were cured by a single application; and in a gentleman very susceptible of excoriation, it acted as a prophylactic. From the success of the latter trial I am induced to think that it might be usefully employed as a prophylactic, in cases of exposure to syphilitic contagion." In his paper in the 'Lancet,' already quoted, Dr. W. H. Ranking says: "I have not had an opportunity of trying this preparation in variola, but I would suggest it as a valuable application to the face, &c., for the purpose of excluding air, and thus preventing pitting. The same effect is produced by tincture of iodine, a solution of nitrate of silver, Vigo's plaster, mercurial ointment, &c., but it strikes me that collodion offers a peculiarly ready mode of obviating deformity. I need not refer to the fact, that the development and maturation of the variolous pustule is in some way connected with the contact of air, as it is always more decidedly and abundantly formed on the face, hands, &c., and is more sparingly developed on the hairy scalp of the adult, while on the scalp of early infancy it makes the same progress as on the face."

3. *As a stopping for teeth.**—In the 'Lancet' for 30th December, 1848, p. 729, Mr. J. Robinson, dentist, Gower street, states that he has "frequently applied collodion in severe cases of toothache, arising from exposure of the nerve, with perfect success, when no persuasion could induce the patient to submit to extraction." The method which he adopts is to let the patient first wash the mouth with warm water, in which a few grains of bicarbonate of soda have been dissolved. He then removes from the cavity any foreign substance likely to cause irritation. After drying the cavity, he drops from a point the collodion, to which have been added a few grains of morphia, after which he fills the cavity with asbestos, and saturates with collodion. Lastly, over this he places a pledget of bibulous paper. In a few seconds the whole becomes solidified, and forms an excellent non-conductor of heat and cold to the exposed nerve. By occasionally renewing this, he has been enabled to effect a more durable stopping with gold-leaf.

Art. 41.—*On the Treatment of Ulcers of the Lower Extremity.*

By George Critchett, f.r.s., &c. &c.

(*Excerpta from Six Clinical Lectures,*† *Lancet*, Oct. to Dec. 1848.)

Classification of ulcers.—Ulcers may be divided into simple or local, and specific or constitutional.

I again divide the simple or local into acute or spreading, subacute, chronic, healthy, irritable, and varicose; the specific or constitutional I arrange under the various heads of strumous, syphilitic, phagedænic, periosteal, menstrual, œdematous, and malignant. Each of these classes of ulcer has certain characters and symptoms by which it may be re-

* This idea likewise suggested itself to Mr. Ancell, and the successful application of it is reported by him in the last Volume of our Journal, p. 138.

† Since making these abstracts we have received these lectures republished in a separate volume by Mr. Churchill.

cognised, and requires for its successful treatment certain modifications of local and constitutional appliances; and as in medicine and surgery generally, so especially in the particular form of disease we are now considering, your success in curing will not depend so much upon the multiplicity of your remedies as upon your power of recognising the exact form of ulcer with which you have to deal, and the plan most suitable for that particular case.

General principles on which the treatment of ulcers is to be based.—In considering the principles upon which the treatment of ulcers of the lower extremity is to be conducted, I must remind you that the reason why ulcers are more frequently found in the lower extremity than in any other part of the body, and are more difficult to heal, and more liable to recur in this situation, is on account of the weight of the superincumbent column of blood weakening the vessels and impeding the circulation through the part. The truth of this will, I imagine, be admitted by all surgeons, though it has not, I think, been sufficiently clearly and forcibly insisted on by writers upon this subject. If this be so, it follows, as a necessary consequence, that the chief aim and object, independent of any specific treatment that the case may require, is to place the circulation of the lower limb on a par with the rest of the body; this object once accomplished, there is no reason why ulcers so situated should not heal as readily and as quickly as in any other part of the body, and such is, indeed, found to be the fact.

The next important question is, How is this desirable result to be accomplished? The answer that at once suggests itself to the mind is, remove the weight of the column of blood by the recumbent position; keep your patient in bed, and at perfect rest, and the ulcer will heal; and this is found to be actually true of a large majority of these cases—perfect rest, combined with the simplest possible treatment, will effect a cure; and in some few cases which I shall hereafter particularly point out, this plan is necessary. But there are many practical objections to this mode of treatment; persons engaged in the active pursuits of life, whether rich or poor, find it very inconvenient to keep their beds for two months, or even for a longer period sometimes. Then, again, a cure obtained on these terms is very apt not to be lasting; but as soon as the patient moves about again, and hangs down the limb, in spite of every precaution the weak cicatrix will give way, and the sore speedily becomes as bad as ever. Surgeons are unwilling, upon such terms, to admit these patients into hospitals, and thus both doctor and patient become tired of this plan, and the latter often puts up with the pain and annoyance of a bad leg for a considerable part of their lives, trying a thousand different nostrums, and at last giving it up as hopeless. I have met with cases of this kind that have never been healed for five and twenty years. Is there, then, no other way besides rest in which the circulation in the lower extremity can be brought to a par with the rest of the body? I reply, with a confidence based upon extensive personal experience, and upon extensive observation of the same practice in other hands, that there is a plan more rapid, more certain, and far more lasting, and more applicable to a large majority of these cases, than rest, and that is, "uniform and complete support to the entire limb, which, I maintain, cannot be ob-

tained by the ordinary bandage, however skilfully applied, but is only to be efficiently accomplished by a proper application of strapping, so as completely to envelope the limb from the toes to the knee.

On the means of affording complete and uniform support to the entire limb in the treatment of ulcers of the lower extremity.—I will now proceed to explain to you, in detail, the method I recommend you to adopt, in order to accomplish a complete support of the entire limb. You must seat your patient opposite to you, and support his foot upon a small stool, about a foot and a half in height, and so constructed as to receive the point of the heel and leave the rest of the foot free. You should be provided with strips of plaster, about two inches in width, and varying in length from twelve to eighteen inches, according to the size of the limb. The best material for this purpose is the simple emp. plumbi of the Pharmacopœia, spread upon soft, unglazed calico, and free from resin, which is often introduced to increase its adhesiveness, but which is very liable to irritate the skin. If the plaster be well made, and of the best materials, it will adhere perfectly; I have often found it unmoved for many weeks, aud even months. It is convenient to provide yourself with a metallic warmer, made with a flat top, upon which you can lay three or four pieces, heated either by hot water or by small lamps, which are better, if you require it for any length of time. This form of warmer is far preferable to the circular one ordinarily in use, saving both time and trouble. But to proceed. You then take the centre of the first piece, and apply it low down to the back of the heel, and then, with the flat part of both hands, press the plaster along both sides of the foot. This, however, according to the size of the limb, must now be applied, to keep the plaster in its place, and the limb is supported in the most complete and efficient manner that human ingenuity has yet devised. None but those who have practically tested the matter can estimate the immense difference between mechanical support so obtained and the most accurate bandage that was ever applied; it is, in fact, far greater than mere reasoning upon the subject would lead you to expect; and whilst it accomplishes all that rest can do for the ulcer, in many cases it does a great deal more, enabling the patient to pursue his ordinary avocations, and at the same time healing the wound more rapidly, and far more lastingly, than the most complete rest would effect.

On the treatment of chronic ulcers.—I will now describe to you what appears to me to be the best method of managing these chronic ulcers. You will often find that when these cases first present themselves to your notice, the surface of the ulcer is foul and unhealthy; it is desirable, if possible, by means of a few days' rest and suitable applications, to obtain a healthy surface to start with, as it renders the subsequent treatment more immediately efficacious, and hastens the cure. Still it will often be found in practice that even this short period of repose is most difficult to obtain, involving perhaps serious loss and inconvenience to the patient; and though desirable, it is by no means necessary to ultimate success, as I have had abundant proof in my own practice.

In cases where rest can be thus obtained, and where the ulcer is indolent, and at the same time foul and unhealthy, the red precipitate

powder is very useful in producing a new and more healthy surface; it should be sprinkled on rather thickly, and allowed to come off spontaneously in a congealed cake or mass; one application is usually sufficient. The principal objection to it is, that it often occasions severe pain for many hours. In making anything like an estimate of the facility, rapidity, and certainty of your success in curing these cases by the method I am about to detail, a most important element to be considered is the situation of the sore; if it be placed about the middle or above the middle of the leg, and the surrounding parts are of a bluish colour, and not very readily emptied by pressure, all that is required is a tolerably tight, complete, and uniform application of strapping to the entire limb, and the sore will rapidly heal. In such a case, a mere tyro will generally be successful; but if, as is very often the case, the ulcer is situated over either malleolus, or in the space between the malleolus and the heel, the mechanical management becomes far more difficult, and the cure more tedious, and, in inexperienced hands, often impossible. The great difficulty arises from the fact that the parts immediately surrounding the sore require a much greater amount of pressure than the rest of the limb will bear. In order to accomplish this, it is better to commence with the application of the short strips of plaster in the way I have already described, putting the first piece some inches below the wound, and covering all that part that is discoloured and indurated; these short strips should be drawn as tightly as it is possible to pull them; after this the limb must be completely supported, and in doing this those strips which are applied over the foot and by the side of the ankle must be drawn tightly; but when you begin to encircle the small part of the leg it must be done with less force. The perfect power of thus moderating pressure in different parts of the limb, and also of forming a correct estimate of the amount of tightness each particular case requires, shows the master of this branch of mechanical surgery, and is only acquired after some considerable attention and practice. It is one of the very great advantages also that strapping possesses over any kind of bandage, in thus enabling you to modify the amount of tightness in different parts of the leg, whereas a bandage can only be applied with the same amount of force throughout; and practically, it is found often to become loose where pressure is most needed, and to get tight round the small part of the leg, where it is injurious.

If, then, you carefully apply the strapping in the way I have directed, and regulate the tightness by the rules I have laid down, you will almost invariably find, when your patient again presents himself at the end of two or three days, that the strapping you applied tightly has become loose; this is not because it has in the slightest degree given way, but because the swelling and intercellular deposit has been to a certain extent removed by the effect of the pressure: this is a very favorable sign. The strapping must now be reapplied as tightly as before, and in two or three dressings the wound will assume a healthy aspect, and the discharge will become thicker and more creamy. In cases where there is a considerable amount of thickening and induration, it often happens that the ulcer will not commence healing until all this has been removed by the pressure; it is necessary to renew the

application more or less frequently, according to the size of the wound and the nature of the discharge. If the wound is large, it is better to dress it at first every day; whenever, also, the discharge continues thin, it is necessary to change it frequently, but as it gets thick, every third day is sufficient; and there is a class of cases sometimes met with in which the discharge is very thick and tenacious, and clings to the sponge, in which the wound heals rapidly, and the strapping may be allowed to remain on for a week. I should say, as a general rule, that twice a-week is sufficiently often for the majority of cases. If you steadily pursue the plan I have now detailed, it matters not how considerable the deposit may be, nor how long the ulcer may have existed (I could almost say, from my own experience, the longer the better). You will almost invariably succeed, not only in healing the sore, which is, after all, but half a cure, but also in getting rid of all thickening and enlargement, and restoring the limb to its natural shape, and the vessels to a comparatively healthy condition, bringing out the malleoli into "relief," as artists say, which may have long laid buried beneath a mass of morbid deposit.

On the treatment of specific ulcers.—With regard to the treatment of specific ulcers, the point I am anxious to insist upon, and of the truth of which I have had abundant proof in my own experience, is, that when it becomes located in the lower extremity, it seems to establish itself there, and to continue long after the constitutional diathesis to which it owes its origin has been removed by suitable remedies, or has at least become so feeble as not to produce any similar disease in other parts of the body, or even in the leg itself, when once it has been soundly healed, and the circulation through it brought to a normal condition. Under these circumstances, the ulcer will maintain its original form and specific character, but yet is capable of being cured by local means only. The object in these cases is not only to heal the wound you find open at the time of treatment, but, at the same time, to induce such a healthy flow of blood through the limb as shall prevent the formation of new morbid deposit, as it is this which renders this disease so intractable. I am induced to take this view of the matter from finding the strumous and phagedænic sores continuing in the lower limbs after every variety of constitutional treatment has been persevered in for a length of time, and after every trace of disease has left other parts of the body, and also after the usual local treatment, including prolonged rest, has been tried in vain. Moreover, it is a curious fact, that I have often observed that rest exerts but a very slight influence over specific sores.

The strumous ulcer is the most difficult to manage. While there remains a mass of strumous deposit in the wound, of course it acts like a foreign body, and prevents the healing process from proceeding; art may be brought to the aid of nature in expediting its removal. Should the external opening be small in proportion to the strumous mass within, it may be enlarged with advantage. When two wounds communicate beneath, they should be laid into one; the red precipitate powder, or some strong escharotic, as the potassa fusa, will hasten the removal of the morbid deposit. This latter is, however, a very severe method, particularly in a weak strumous patient, and one to which

I have very rarely felt justified in having recourse. When the strumous enlargement is just forming beneath the skin, I have found advantage from painting it over either with the tincture of iodine or the solid nitrate of silver; a weak solution of iodine is also a very valuable application to strumous sores in the form of a lotion; other stimuli, particularly the lotio nigra, is often useful.

In that form of phagedænic ulcer which spreads in one direction and heals in another, it is sometimes advisable to destroy the peccant edge with some powerful escharotic, as nitric acid. In those cases where there is extensive burrowing in the cellular tissue, this would be a very severe method, and I think it quite unnecessary. It is a much better plan thoroughly to saturate small strips of lint with black wash, and with a probe thrust them to the very bottom of the wound, so as to bring the black powder into contact with every part of the ulcerated surface. In these undermining phagedænic sores, I have met with no application at all comparable to the black wash, when properly used; if it is left to the patient or a nurse, it invariably fails. Having then selected what I deem a suitable specific local remedy for these cases, and having got rid of any slough or strumous deposit that may exist, I always superadd mechanical support, and my case-book and hospital experience bear ample testimony to the advantage of this combined plan, both in effecting a cure and in preventing relapses; either is insufficient of itself, but when the special character of the sore is met by a proper application, and the feeble vessels of the limb are restored to a healthy condition by strapping, a quick and lasting cure is usually established. These specific cases generally bear the support rather tightly applied, more particularly if the leg feels soft and doughy; but the same rules I have already laid down on this subject are equally applicable in these forms of the disease. Sometimes, when all seems to be progressing favorably, you will find a fresh enlargement forming beneath the skin; this will probably run through the same course as the others have done; it may even occur more than once; but you must not be discouraged by this; it is only the last expiring efforts at the re-establishment of disease in the limb, and will ultimately be completely overcome by perseverance. I have even known a few cases in which, the constitutional tendency still remaining in some force, the disease has manifested itself in some other locality, being unable to re-establish itself in a part that was protected, as it were, and kept in a healthy condition by mechanical support. I do not here enter upon the subject of the constitutional treatment of these cases, which would involve the prolific questions of the general management of strumous disease, and of the secondary and tertiary forms of syphilis; but, of course, every judicious surgeon would combine a suitable course of medicine if he has reason to think any specific taint remains, supporting, at the same time, the powers of the system by a generous diet, this last point being, according to my observation, a most important element in success. In many of the cases that I have met with, and upon which I have founded the foregoing remarks, this constitutional treatment had been persevered in for a length of time before coming under my care, and subsequently also under my superintendence, but without success, and it has been

this circumstance that has led me to rely so much upon mere local means, such as I have now recommended.

Occasionally these specific ulcers are complicated with disease of the bone or the periosteum. This renders the case far more serious and intractable; and it is important that you should recognise this unfavorable feature in the case, that you may not mislead yourself and your patient with hopes that are not likely to be realized. Under these circumstances the ulcer will not heal until the periosteal disease of which it is a consequence has subsided; and affections of this structure, however rapidly they may sometimes be developed, are extremely slow in subsiding. This constitutes the "periosteal ulcer:" two or more are generally found, and in their vicinity depressed cicatrices, adherent to the bone, at once indicate the nature of the case. The sore itself is generally raised, but the surrounding parts are hard and unyielding. I have nothing to suggest, in regard to the treatment of such cases, beyond what has been recommended by previous authorities. (See Report on the Progress of Surgery in this volume.)

ART. 42.—*Cystorrhœa—Discharge of Phosphatic Calculi—Cure by Injection.* By THOMAS BALMAN, Esq.

(*Medical Gazette*, Dec. 1, 1848.)

Mr. P., a Peruvian gentleman, 58 years of age, generally of temperate habits, though habitually indulging in a most pernicious practice of charging his stomach with a glass of spirits before dinner, consulted the author under the following circumstances:—He states that he has always enjoyed good health until about four years ago, when he contracted a chancre, for which he took mercury; the sore speedily healed, and he felt no further inconvenience until some two or three months after, when he was attacked by symptoms of secondary syphilis, which also yielded at once to sarsaparilla and the usual remedies. With the exception of a slight attack of jaundice whilst in Peru, does not remember anything that in the least disturbed him in the exercise of his pursuits, either of pleasure or business, until the evening of the 2d July, when, after dining as usual in company with a friend, he was suddenly seized with retention of urine. A surgeon in the neighbourhood was sent for, but states the bladder was not relieved until the following morning, when a catheter was passed, and the water drawn off without any difficulty. It was found necessary to continue the use of the instrument for about a week, when it was laid aside, the bladder having sufficiently regained its tone. He continued subsequently to suffer from all the symptoms of chronic inflammation of the bladder up to the 24th August, when the author saw him for the first time. He then complained of a frequent desire to void his urine, which was always attended with the most excruciating pain, referred chiefly to the glans penis; the passage of mucus, mingled with calculous matter, greatly increased his agony, by sometimes blocking up the passage so completely as to prevent entirely the escape of any urine. He was effectually relieved of this impediment by syringing warm water into the urethra.

His countenance presented that pale, anxious, and sombre hue, so

peculiar to these affections; and the tongue was coated with a brown fur. The urine appeared to consist of but little else than a thick glutinous mass of jelly, deeply tinged with blood, of a fetid ammoniacal smell, alkaline, changing turmeric paper immediately brown. The quantity of gray calculous matter passed in the form of crystalline gravel, and in a semifluid state, was very considerable: the specimen brought having been carefully collected together a few days previously, was sufficient to fill a large pill-box. He was ordered a grain of opium night and morning, and an enema of poppy heads, with thirty drops of laudanum (the latter, however, causing constipation, was soon discontinued), lemonade as a drink, and rest in the horizontal position, &c. The more urgent symptoms having been relieved, he was directed to take the decoction of pareira with dilute nitric acid three times a day, continuing the opium at night.

Sept. 5.—Water still alkaline, increased in quantity, of a pale whey-like aspect; specific gravity, 1·013; at other times, when passed in less quantity, as high as 1·030. Large fragments of calculous matter continued to be voided, chiefly in the evening. The nitric acid increasing the irritability of the bladder, he took instead the acetic, and subsequently the dilute, phosphoric acid in the same decoction.

14th.—Bore the phosphoric acid very well; quantity of mucus, or rather muco-purulent matter, diminished. I have said muco-purulent, because the deposit every now and then presented that appearance; and, moreover, the supernatant liquid, when distinctly free of any blood, *sometimes* coagulated both on the application of heat and nitric acid. From this time the bladder was washed out with warm water daily with great benefit.

26th.—The bladder was injected with the following:—Acidi hydrochlorici, ℥x; tr. opii, ʒss; aq. distil. ℥iv. This produced no pain, but brought on a second attack of retention of urine, arising evidently from the coagulation of the albuminous portion of the diseased mucus by the acid, which, finding its way into the urethra, prevented the escape of any urine. Large masses of this shreddy substance were afterwards discharged, and in a few days the catheter, which had been required to relieve this temporary difficulty, was discontinued. The injection was again used, but much reduced in strength, without any of these unfavorable consequences occurring. From this period a great improvement took place: no sand or calculous matter had been voided since the first injection of the acid; irritability of the bladder greatly lessened; strength and appetite improved; and the tongue, which had before never varied in appearance, but always retained the characteristic brown coat, became almost suddenly clean, and the urine exhibited faintly its normal acid reaction. He took a decoction of matico, in place of tea, morning and evening, and a few drops of the tinct. ferri mur. twice a day, with some apparent benefit, until the 30th of October, when he was sufficiently well to go into the country, and has since returned convalescent.

Remarks.—Catarrh of the bladder occurring at an advanced period of life, whether arising from stone, stricture, enlarged prostate, or

simply, as in the present case, from the deposition and subsequent incrustation of the mucous lining of the organ by some of the constituents of the urine, must always be viewed in the light of a very formidable disease, unless we can ascertain and speedily remove the cause. Now the "fons et origo mali" here clearly depended upon a morbid condition of the mucous lining of the bladder, which, by chemically acting upon the urine secreted by the kidneys, caused the deposition of the insoluble earthy phosphates; to correct which I administered the mineral acids. Both the nitric and muriatic were tried, but without any decided effect, weak doses being ineffectual, and increasing their strength only tended to make things worse by augmenting the irritability of the bladder. The acetic acid seemed to agree with the patient, but did not appear to do any good. The phosphoric acid, however, he continued to take for some time, and appeared to be of great use, both in giving tone to the stomach, and diminishing the quantity of mucus. After giving each of these remedies a fair trial, and assuring myself that no stone existed in the bladder, I determined upon attacking the disease by injections, and, as stated, with complete success: the secretion of earthy matter was immediately arrested, the irritability of the organ gradually subsided, and the dark fur which seemed to be permanently fastened upon the tongue began to disappear, and the urine, which before the injections had been constantly alkaline when passed, became neutral, and quickly assumed its normal acid reaction—a convincing proof, I think, that the studding of the bladder with phosphatic concretions was the cause of the alkaline condition of the urine, and not, as is very frequently the case, from disorder of the assimilative functions, in which case the urine would be secreted in an alkaline state by the kidneys.

There seems to be one very important point to be attended to as regards the strength of the acid injection, necessary to accomplish the solution and removal of the calculous matter deposited by the diseased lining of the bladder. At first I believe I used the acid of too great strength; the consequence was, that dense masses of concrete lymph filled the urethra so completely, as to prevent the escape of a drop of urine until a catheter had been passed. A large quantity of albuminous matter must, therefore, be secreted in these diseased conditions of the organ, which the acid will of course coagulate, causing much increase of suffering, if not more mischievous and fatal consequences. I should not again, therefore, venture on an injection of greater strength than two minims of the concentrated acid to four ounces of water, as recommended by Sir B. Brodie, always taking care to wash out the bladder, so as to free it of as much mucus as possible, with warm water, some days before, and immediately prior to, the operation.

Art. 43.—*On the Treatment of Stone in the Female.*

By Bransby Cooper, f.r.s.

(*Medical Gazette*, Feb. 2, 1849.)

Calcareous deposits, it is said, occur much less frequently in the female than in the male; but probably this assertion is not so correct

as the frequency of the assertion would lead us to suppose; the rare occurrence of accumulation of calculous matter in the bladder may be easily explained from the shortness and large size of the meatus urinarius in the female. There is, in fact, no very apparent reason why the blood in the female should be purer, or why the kidneys should be better able to eliminate the due proportion of the natural constituents of the urine, unless it may be said, perhaps, that the usual mode of life is more regular, and the dietetic observances stricter. Sometimes, however, calculi do concrete in the female bladder, and the symptoms produced by their presence are very similar to those in the male subject, attended perhaps by more "bearing-down pain," in consequence of the irritation produced upon the uterus, and they suffer more from incontinence of urine, in consequence of the shortness of the urinary passages. Retention of urine is also a frequent result of stone in the bladder in the female, from the liability of the extraneous body to become impacted in the meatus urinarius, precluding the possibility of micturition, and requiring its immediate removal for the patient's relief. Some years ago, I admitted a patient (a girl of 12 years old) into Mary's Ward, who was the subject of retention of urine, and upon examination, discovered a foreign body within the meatus. On attempting to extract it with forceps, I accidentally pushed it back into the bladder. I found it impracticable to remove the stone at the time, but proceeded immediately to dilate the urethra by means of sponge tent; but this method produced so much pain that I was obliged to substitute the use of Weiss's urethral dilator, and, in a few days, was enabled to pass forceps into the bladder, and extract the stone without employing any cutting instrument. This mode of operation, if the stone be large, should not be adopted, as it would lead to the necessity for such dilatation of the meatus as probably to render it incapable of being restored to its natural size, and permanent incontinence of urine would be the result.

To remove large calculi, therefore, the patient should be placed in the same position as the male subject, and confined in the same manner, a straight staff is passed into the bladder, and held by an assistant; a knife is then introduced along the groove, and the incision made in the oblique direction downwards and outwards, between the vagina and ramus of the ischium, in the same direction as in the male, but of less extent; the forceps are then introduced, and the calculus removed.

I have twice performed this operation, and in both cases the patients recovered without any permanent incontinence of urine being the result; while in the case by dilatation related above, although the incontinence was not permanent, still it was many months before she had the power of perfectly retaining her urine. Many surgeons, indeed, recommend the operation of cutting in all cases, in preference to that of dilatation, in consequence of the much greater liability to incontinence in the latter mode; but I confess, from what I have been able to ascertain from the experience of others, I am led to believe that incontinence results as much from the one as the other operation, and am inclined to recommend dilatation where the calculi are small, and the use of cutting instruments where they are large.

Calculi in the female are frequently found to have concreted upon

foreign bodies; and Sir Astley Cooper relates a case in which he removed from the bladder of a woman a calculus of which a large portion of a brass nail formed the nucleus. This calculus is preserved in the collection at St. Thomas's Hospital. The means by which substances have been introduced are too obvious to require any explanation. Mr. Cline's well-known case, in which a quantity of coal had been passed into the vagina, while the woman described herself to be the subject of stone in the bladder, is a further instance of that peculiar kind of depravity which not unfrequently falls under the notice of the surgeon.

The medical treatment of the premonitory symptoms to the formation of stone, the means of relieving the pain arising from its presence either in the kidney, ureter, or bladder, and the plan to be adopted to prevent the recurrence of the concretions after the calculi have been removed, are precisely similar to those which have already been recommended in the male subject. The danger in the operation for stone in the female is infinitely less than in that of the male, as would be readily conceived from the different conformation of the external generative organs. I once assisted Mr. Costello in an operation for the stone in a female at Greenwich, in whom the stone was so large as to preclude the employment of lithotrity; and he therefore proceeded to the operation of lithotomy; on passing the forceps into the bladder and seizing the stone, from its size, the difficulty of removing it was so great, that he intentionally laid open the rectum to facilitate its extraction. The patient recovered without a dangerous symptom, but had afterwards permanent incontinence both of urine and fæces. The stone in this case weighed seven ounces.

The after-treatment is much the same as in the male subject, but, in addition, requires the introduction of an elastic catheter, to prevent extravasation of urine into the cellular tissue around the vagina. In such cases, where the stone is too large to be removed by dilatation, and yet not so large as to preclude the propriety of its being crushed, the operation for lithotrity is highly applicable; but I think a lithotrite should be made expressly for the female, as the length of the instrument employed in the male would be inconvenient.

Art. 44.—*Varicocele treated by Pressure.* By J. R. Thomson, M.D.

(*Monthly Journal,* Nov. 1848.)

The following pages have been written with the view of inducing surgeons to try a plan of treatment for the cure of varicocele, the nature and success of which seem little known to the profession in general. That it *is* little known I am led to believe from conversations with our principal surgeons in Edinburgh on the subject; and from the fact, that in the medical journals of the day little mention is made of this safe and successful method of cure. On the other hand, scarcely a periodical appears that has not a description of one or other of the numerous and hazardous operations that are continually practised for the radical removal of this complaint.

Mr. Curling, of London, so far as I am aware, is the only one who has published cases of varicocele cured by this plan; and here I gladly

seize the opportunity of acknowledging the benefit I have derived from what he has written on the subject.

In having recourse to any means for the relief or cure of varicocele, it ought always to be borne in mind that the affection itself is not at all a serious one; and, therefore, that no surgeon is justified in having recourse to any dangerous expedient for the removal of a disease only troublesome, not dangerous in its effects. If warranted in any extreme case—as when much pain is experienced, and when injury to the testes may be threatened—an operation ought only to be had recourse to when palliative measures and the method I am about to explain have failed in giving relief. Mr. Syme, and other judicious surgeons who have not yet tried this plan, seldom or never now have recourse to such dangerous procedures as those of Velpeau, Breschet, Ricord, &c., thinking it better to be content with palliative treatment, than to risk the lives of their patients by performing operations fraught with much danger. This palliative treatment consists of frequent bathing of the parts in cold water, together with the use of a suspensory bandage, or, in urgent cases, excision of a portion of the scrotum, to serve the same end more completely, and with less trouble to the patient. The curative measure we now propose is not more troublesome than an ordinary suspensory bandage, and certainly greatly to be preferred to the latter of these modes of trussing. We hope the day is not far distant when the details of such doubtful and hazardous operations as those of Velpeau, &c., will only be interesting as matters of surgical history. As a means of accomplishing this desirable end, we confidently look forward to the *pressure* plan of treatment doing much.

In several instances I have recommended this practice to other practitioners; but only in a few instances, as yet, have I personally superintended this method of treating varicocele. The following is the only case that has been under treatment sufficiently long to render it worthy of detail.

Case.—*Large varicocele on the right side, upwards of twenty years' standing, completely relieved by pressure.*—This varicocele, which consisted of a plexus of dilated veins wholly surrounding the body of the testicle, and extending up the inguinal canal, gave rise for many years to great uneasiness, consisting principally of a disagreeable sense of dragging and weight from the loins, and occasional sickness after much exertion. Standing long in one position gave rise to the same, and sometimes to a dull aching pain in the affected parts. The testicle of the affected side was not smaller, as often happens in such cases, but felt somewhat softer than that on the sound side. Two surgeons, who saw the case about four years ago, were of opinion that it was one of scrotal hernia, and accordingly recommended a spring truss to be applied. This was done for a time, but could not be persevered with, as the ordinary hernial truss did not prevent the tumour reappearing, when pain was produced to such an extent as to require immediate removal of the instrument. About this time Professor Syme was consulted, who soon detected the real state of matters. He immediately forbade the use of the truss, and ordered local bathing with cold water once or twice a-day, and that the trousers of the patient should be worn well braced up. By this means the trousers being worn so as to

exert not only pressure over the scrotum, but considerable pressure on the dilated veins at the external ring, great relief was given to local and general, including mental, uneasiness.

As is common in cases of varicocele and other secret disorders in early life, there was great mental distress in this case, out of all proportion to the actual disease. At times the depression of spirits had been such as to interfere with all mental exertion of any useful description. Much of the relief afforded in this last respect, I have no doubt, was due to the assurance given, that the affection was not a serious one—at the worst only an inconvenience. But that the relief mainly depended on the pressure exerted in the manner described was proved by the circumstance, that when trousers were used that did not admit of this bracing, the pain and many of the other symptoms immediately returned. Here it may be stated, that no sensible benefit had been derived from the use of the ordinary suspensory bandage. It was my knowledge of the effects of the bracing on the dilated veins that led me to recommend for this case a simple contrivance, that might exert the necessary pressure independently of the trousers. This bandage consisted of one strap or belt to encircle the abdomen, with a pad projecting from the right side of it, to be retained over the tumour in the inguinal canal, and the pressure there regulated by means of a thigh-strap. This afforded relief, but still was not sufficient to remove the disagreeable sensations already described.

Some time after this I was much gratified to find, on reading Mr. Curling's valuable work 'On the Testis,' that he had recorded there two cases of varicocele, one of which had been completely relieved by pressure—exerted by Evans's patent lever truss—in twelve months, and the other, as subsequent observations* have shown, completely cured in fifteen months. Although opposed to preconceived notions of the indications to be fulfilled in the treatment of varicose veins, yet from what I had seen of the benefits of pressure, as already stated, I had no hesitation in giving Evans's truss a fair trial. Before applying it, Mr. Curling was consulted, when, on examining the case, he at once agreed with me in thinking it one of decided varicocele, and, moreover, very favorable for treatment by pressure. Accordingly Evans's patent (moc-main) lever truss was applied over the external ring. The patient, as the result of this trial, was not more astonished than delighted to find that, for the first time in his own recollection, no tumour appeared in the scrotum on rising from the recumbent posture. Now and then, however, the tumour reappeared when violent exercise was taken on horseback, or otherwise. From this circumstance, and other reasons that will be mentioned in the subsequent observations, if space permit, I was led to invent a more efficient truss for this case of old-standing varicocele. This instrument consists of a small circular spring, with a pad attached to it, so constructed that it can be made to extend as little and as much beyond the external ring as may be thought necessary for the extent of the affection, or as the shape of the pelvis may require. On the outer surface of the pad is fixed the same simple lever-spring that I had made for the first truss, and is nearly the same as that on the moc-main truss—which I would

* London Med.-Chirurg. Transactions, vol. xxiv.

recommend for slight and recent cases of varicocele *only*. To the free end of this spring is attached the ordinary thigh-strap, by which, while steady pressure is kept up over the inguinal canal, the pressure can be increased or diminished at will over the external ring. Since the employment of this last instrument, now ten months ago, though most violent exercise has been taken, preternatural dilatation of the veins has not once occurred; and during the whole of that period perfect immunity has been experienced from all the distressing annoyances of a variocele. The patient is now apparently free from the disease, and both testicles feel alike natural.

ART. 45.—*New Operation for the Radical Cure of Varicocele.* By S. D. GROSS, M.D., Professor of Surgery in the Medical Department of the University of Louisville.

(*American Journ. of Med. Science,* Oct. 1848.)

The following operation, for the radical cure of varicocele, I have performed eight times within the last few years. The patients were all young men of good constitution, and they all recovered without a single bad symptom. The cure, so far as I have been able to learn, promises to be permanent in every instance.

During the operation the patient may lie down, sit in a chair, or stand up, as may be most convenient. The scrotum, previously divested of hair, is rendered tense by grasping it behind with the left hand. A vertical incision, scarcely an inch in length, is made over the anterior part of the tumour, down to the enlarged veins, which are next carefully isolated from the accompanying duct, artery, and nerves, by a few touches with the point of the scalpel. This constitutes the first step of the operation. The second consists in passing a short, thick sewing-needle—a No. 1 of the milliner—underneath two or three of the larger trunks, and winding around it a stout thread, either elliptically, or in the form of the figure 8. The ligature is drawn with great firmness, so as to indent the coats of the vessels, and put an immediate stop to the circulation. The operation is finished by closing the wound carefully with one or two twisted sutures, or a few strips of court-plaster. The patient is now put to bed, the scrotum is supported with a silk handkerchief, and light diet is enjoined. At the end of twenty-four, or, at most, thirty-six hours, the blood in the constricted veins is sufficiently coagulated to justify their division, and the removal of the needle. This is readily effected by insinuating a narrow, sharp-pointed bistoury underneath the vessels, with its back towards the needle.

Should symptoms of inflammation arise after the operation, or, in other words, should the parts become red, tender, and swollen, recourse must be had to antiphlogistics, and to the application of cold water, or solutions of acetate of lead and opium. The patient may usually sit up in five or six days, and in a few more he may be permitted to walk about. The little wound soon cicatrizes, and the induration, caused by the coagulation of the blood between the testis and the seat of the constriction, gradually disappears by absorption. The period required for this rarely exceeds a month.

The advantages of the above operation are, first, its perfect simplicity and the facility with which it may be executed; secondly, its freedom from pain and hemorrhage; thirdly, the certainty with which we may avoid injury to the spermatic artery, duct, and nerves; fourthly, the little inconvenience or suffering which the patient experiences after it has been performed; and fifthly, the rapidity of the cure. These considerations will, I think, be found sufficient to recommend this method to the favorable notice of practitioners. Most of the operations described in the books are complicated, severe, and dangerous.

It occasionally happens in this affection that the scrotum is very flabby and pendulous. When this is the case the cure will hardly be complete, unless the surgeon retrenches the redundant structures. I have been obliged to resort to this expedient only once in my operations. A portion of scrotum, nearly of the size of a large hand, was excised with the scalpel, and the wound closed by the continued suture, which I consider far preferable, under such circumstances, to the interrupted or twisted.

ART. 46.—*Magneto-Electricity in Hydrocele.* By H. R. FROST, M.D., Prof. Materia Medica in the Med. College, State of S. C.

(*Charleston Medical Journal,* July 1848.)

In No. 3 of the 'Southern Journal of Medicine and Pharmacy,' a case is related by Dr. Ogier, of the efficacy of the above agent in promoting the absorption of the fluid effused in hydrocele.

From the results of its application, Dr. Frost was encouraged to make trial of the remedy in a similar case, and though the effects were not such as were anticipated, yet a cure was accomplished, and further powers in the use of magneto-electricity were developed. It is, therefore, in extension of the views furnished in the article referred to, that he publishes the following case:

In July, 1845, the patient observed some enlargement of the scrotum, but did not pay particular attention to it until the latter end of August, when the swelling was found to increase, but was not so troublesome as to cause uneasiness. In the month of November he removed to the country, where he was actively engaged, and took some exercise on horseback, when he found the swelling to increase very perceptibly. Towards the spring, it became from its size very inconvenient, and interfered much with his movements, especially in the saddle.

On his returning to the city, Dr. Frost was consulted, with the late Dr. Sinkler. It was decided that a trial should be made of electro-magnetism, and a battery was procured early in June, and used for three weeks without any apparent advantage. At this time the size of the tumour became quite inconvenient, and the stretching of the spermatic cord caused much pain. The author suggested the propriety of puncturing the tumour, as his patient's constitution was much enfeebled, and the approach of the hot months would render confinement to bed, from an operation, extremely irksome.

Early in July the tumour was punctured, without much pain being

experienced, and nearly a pint of fluid was drawn off. Severe inflammation of the testis ensued, which did not subside under several weeks. At the end of this period no return of the effusion was apparent, neither has there been any to this time, and there is every appearance of a perfect obliteration of the sac.

The practice in the above case furnishes matter for reflection, and probably for imitation. It is the application of a remedy to a purpose hitherto little suspected, and suggested wholly by accident. The explanation which would be offered is, that the stimulus of the electrical fluid gave increased activity to the vascular structure of the testis and scrotum, disposing it by an increase of that action, as by puncturing, or other irritation to take on inflammation; since, in the results which followed, we have every reason to suppose that coagulating lymph was effused, and obliteration of the sac was effected. That such has been the case, is inferred from the circumstance of no return of the disease, though three years have elapsed. In the employment of this agent, the author would suggest that its use be limited to cases of recent occurrence, as it is those only which can be benefited. Where the sac has undergone morbid thickening, amounting almost to cartilaginous hardness, it is not presumable that much benefit will be afforded.

ART. 47.—*Description of a Truss to be worn in Cases of Congenital Hernia.* By WILLIAM COATES, M.R.C.S.

(*Medical Gazette*, Sept. 29, 1848.)

The author remarks, that there are few surgeons who have not been hampered in the management of hernia, occurring in very young infants, either from the want of tact in nurses—the impatience of restraints—the necessity of removing the truss during washing and dressing, when the infant usually cries—the falling which frequently occurs—or from the expense of a constant supply of new trusses, occasioned by the rotting and destroying influence of urine, notwithstanding the coating of India-rubber, japan, or any other varnish.

The truss which he describes is that employed by a gudewife in his neighbourhood, and its excellence is such, that it is a duty to make it generally known. He states that he has given this truss extensive trials: the result has uniformly been the radical cure of the disease. It consists simply, of a skein of lamb's wool; for infants,—*Berlin wool* is preferable: this encircles the pelvis, one end is passed through the other at a point corresponding with the inguinal ring; the free end is carried between the thighs, and is fastened behind to that portion which forms the cincture.

This simple and cheap contrivance can be worn during the morning and evening ablutions, and then changed for a dry one; no attention is required on the part of the nurse, except at the moment of changing. With ordinary care in drying the skin, and the occasional application of magnesia or other nursery powders, the skin is never galled.

In cases of emergency this truss may be made available for adults; or rather, the modification of two silk handkerchiefs tied in a ring, which, as a *pis aller*, is no more to be despised than is a garter and stick as a temporary tourniquet.

ART. 48.—*On the Employment of Sugar of Lead in Strangulated Hernia.* By Drs. NEUBOLD and HASSERBRONC.

(*L'Union Médicale*, Nov. 30, 1848, and *Monthly Journal*, Feb. 1849.)

The use of sugar-of-lead enemata for reduction of strangulated hernia was first recommended by Neuber and Seitl; it has recently been tried by Drs. Neubold and Hasserbronc. Dr. Neubold affirms that operations would become very rare were this agent more extensively used:—he states that in his experience of its effects, he has always met with success, and that he has given four to six enemata, each containing ten grains, of the acetate of lead, without bad results. In a case of a very large scrotal hernia, which had resisted the taxis and all other means for twenty-eight hours, and the patient refusing to consent to an operation, ten grains of the acetate of lead dissolved in six ounces of tepid water were given as an enema, and this was to be repeated every two hours. The pulse, which was small and contracted, gradually became more developed, the general condition hourly improved, and the hernia spontaneously returned while the man was asleep. In another case of inguinal hernia, Dr. Neubold was not called till strangulation had lasted three days, and had given rise to the worst symptoms. The patient's condition improved much after the use of the enema, and the hernia readily yielded to the taxis.

Dr. Hasserbronc has tried it, and with complete snccess; the following are the circumstances of the case:—In the month of September, 1848, Dr. Hasserbronc was called to visit Michael Th—, a basket-maker, about sixty years old, to reduce a large inguinal hernia of the right side. The patient had already made several ineffectual attemps to reduce it, but he only rendered the tumour more painful. Constipation was present, hiccough, and strong agitation. Dr. Hasserbronc tried the taxis, emollient enemata, cold applications to the tumour, and other usual means, without success: the strangulation had already lasted thirty-six hours. He was going to request a consultation for the purpose of advising an operation; before doing so, however, he determined to try sugar-of-lead enemata, forty grains to twenty-four ounces of warm water for four enemata; two every two hours; at the same time he ordered cold applications of strong sugar of lead to the tumour: after the third enemata, Dr. Hasserbronc again tried the taxis, and was able to reduce the hernia. He ordered immediately an ounce and a half of castor oil; the patient had several stools during the night without suffering any bad effects: two days after he resumed his usual business. Though not altogether sharing in M. Neubold's hopes, Dr. Hasserbronc believes this remedy will play an important part in the treatment of strangulated hernia, and that it will advantageously supplant tobacco enemata, which are not free from danger.

ART. 49.—*On the Treatment of Fractures of the Thigh-bone in Infants in the Flexed Position.* By EDWARD F. LONSDALE.

(*Medical Gazette*, Aug. 4, 1848.)

When fracture of the thigh-bone occurs in infants or in very young children, it is by no means an easy matter to prevent shortening

of the limb, owing to the difficulty of maintaining the correct apposition of the two portions of bone. This difficulty all surgeons of any experience in the treatment of fractures must have met with. My attention has been more particularly directed to the subject lately, from many cases having come under my care at the Orthopædic Hospital, as well as two in private practice, the children having been brought for the treatment of existing lameness, in all of which there was shortening of one limb, owing to the thigh-bone having been fractured at a former period, and to the want of proper care in preserving the correct apposition of the bone during the treatment. On examining the limb carefully, the cause of the shortening was found to be owing to the extreme curve forwards of the shaft of the femur, and not to the lower portion being drawn up behind the upper (which is generally the cause of the shortening in adults). The result, however, is the same—namely, the approximation of the knee to the hip-joint, and a consequent diminution of the length of the whole limb.

The cause of this increased arch in the bone depends on the difficulty of keeping the upper end from tilting upwards, and of bringing the lower portion into the same line with it. The bone then unites in an angle, causing the whole thigh to appear curved forwards; for in the majority of cases, as already stated, there is no retraction of one portion behind the other. In adults, this evil is guarded against by the employment of the inclined plane; but in infants or very young children, this apparatus cannot be employed, for there is the absence of sufficient weight in the pelvis and body, as well as the difficulty, if not impossibility, of keeping the child in the horizontal position—points essential to secure its action, and to preserve the correct line of apposition of the two portions of bone.

The treatment generally followed for these cases, and the one that I have hitherto employed myself, is to keep the limb in the extended position, by using long lath splints, extending from the hip down to the foot. (I am convinced that short ones, applied to the thigh only, cannot keep the ends of the bone in apposition.) The splint in the front should be the longest, and be made to pass up before the hip-joint as high as the crest of the ilium. A thick pad is placed on the upper portion of the thigh-bone. Great pressure, however, is required to insure the effectual action of the splints, as well as the necessity of keeping the child in the horizontal position, a position that is difficult and irksome in infants, more particularly during nursing.

Meeting with these difficulties, I turned my attention to the possibility of treating these cases by the flexed position, and have been enabled to do so by the following simple means, which, in the case of a child twelve months old, recently under my care, answered most satisfactorily; the correct apposition of the ends of the bone being preserved, at the same time that the position of the child was less constrained and awkward.

I employ two narrow long strips of sheet iron, an inch wide, and thin enough to allow of being easily bent at any angle required, though sufficiently thick to bear the weight of the limb without yielding. They are applied as follows:—The child is placed on its back, and an assistant holds the limb in a position so as to flex the hip-

and knee-joints, the angle of flexion being similar to that employed when the inclined plane is used for adults. The two thin iron splints are then bent at angles corresponding to the hip-, knee-, and ankle-joints, to adapt themselves to the limb, in the position in which it is being held by the assistant. An important point to attend to is, the proper length of the splint. The upper one should be long enough to pass up in front of the hip-joint, to lie flat on the lower part of the abdomen, and to extend down over the instep to the toes. The back one should extend up behind the buttock, being curved to fit its shape, as high as the posterior margin of the crest of the ilium, and long enough to extend down behind the heel to the sole of the foot. If the two splints are bent at proper angles, to correspond with the shape and position of the hip-, knee-, and ankle-joints, they will, when firmly bound to the limb, keep it in the position required, which is one that most favours the correct apposition of the ends of the bone, by relaxing all the muscles. The limb must of course be evenly rolled before applying the splints, and the splints themselves be padded. The upper ends of the splints are to be firmly fixed to the pelvis, by passing the bandage many times round them, and occasionally reversing the direction of the bandage round the ends of the splints themselves, to prevent them being displaced laterally.

Art. 50.—*Notes from a Clinical Lecture on Morbus Coxarius.* By Professor Syme.

(*Medical Times*, December 30, 1848.)

Morbus coxarius is most common between the ages of seven and fourteen, and is generally owing to injury, such as a bruise from a fall on the side; more rarely to a twisting of the body. Sometimes, also, it comes on without any ascertainable cause.

The symptoms of morbus coxarius are,—weakness of the limb, pain from resting upon it—the pain extending from the hip down to the knee; is always greatest at the middle of the night, and worse some nights than others, being usually greatest before a change of weather. The pain in the knee is towards its middle and inside, and not at the outside, as in sciatica. The form of the hip is altered, being flatter than natural, and there is no fold between the hip and thigh. The limb is longer (in some cases, but more rarely shorter) than the other. This, however, is only apparent, and is due to the obliquity of the pelvis, produced by the effort to take the stress off the leg, and thereby ease the pain. It has been estimated that, for every one case in which the limb is shortened, there are six in which it is apparently lengthened.

The progress of the disease.—Sometimes the joint may recover, and no trace of the disease be left behind; at other times the textures of the joint are more or less altered by absorption of the articular apparatus. This, however, is the rarest of all terminations. Much more frequently the disease goes on to suppuration, and an abscess forms, which opens on the outside of the hip. Different results may now follow. The sinus may contract, and heal up with little change in the form or mobility of the joint; or there may be a slight

shortening. Oftener, however, if a cure is effected, it is by anchylosis. The limb is shortened, and the toes everted, or sometimes inverted. If the head of the bone is much shortened by absorption, there is nothing to prevent the muscles inserted into the trochanter from rotating the thigh outwards, as in fracture of the neck of the femur. If the head of the bone is not diminished, but the capsular ligament be absorbed, the head of the bone will come out of the acetabulum, and be anchylosed to the dorsum of the ilium, and then the toes will be turned in, as in dislocation, on the dorsum ilii; their direction depending on the position of the thigh-bone when it escapes from the acetabulum. But the worst termination of all is, when the discharge, once begun, does not cease, but goes on so as to cause death.

Thus far all are agreed. But as to what follows, there are many differences of opinion.

1. *As to its origin.*—In what texture does it originate? In the synovial membrane, cartilage, or osseous texture? The most common opinion is that it commences in the cartilages, but with this I can never coincide, as it does not explain the phenomena. Disease may commence in cartilage in the case of the elbow and other hinge-joints, as the knee and ankle; but this is a rare occurrence in ball and socket joints. When disease commences in cartilage, there is great pain in moving the joint at the very commencement. But in morbus coxarius, though there are midnight pains, motion does not cause pain. Sometimes in morbus coxarius there is obvious ulceration of the cartilages, but then the symptoms are very different. It is almost impossible that there can be any alteration in structure for a long time, the disease remaining chronic for an indefinite period.

2. *As to its treatment.*—Not long ago, as sure as the disease was recognised, so sure was the employment of counter-irritation by the cautery, caustic, or seton; but milder treatment is now adopted. Rest is to be enjoined in all cases of diseased joints; but far more benefit is to be derived, in morbus coxarius, than might be expected, by carrying this injunction further than in the case of other joints. The long splint should be applied as in fracture of the neck of the femur. This secures immunity from motion to the hip-, knee-, and ankle-joints; for it is to be remarked, that if the ankle be moved the knee is moved, and when the knee is moved so also is the hip. If the disease goes on to suppuration and abscess, the abscess should be opened by a free external incision. Cod-liver oil is found to be beneficial, probably acting as a nutrient tonic.

If caries supervene, no human means can remove the disease. Lately, in some of the London hospitals, it has been attempted to cure the disease by removing the carious head of the femur; but this is improper, as caries of the joint never exists without the bones of the pelvis being equally involved. I regret that these operations should have been attempted, as they tend to throw discredit on the excision of other joints, such as the elbow, where the practice is eminently useful, and which has now become an established operation in surgery. If the disease admits of recovery, excision of the head of the thigh-bone is superfluous and useless. If it does not admit of recovery, cutting out the head of the thigh-bone can only hasten the

fatal termination. If the patient recovers after the head of the bone has been cut out, it is a distinct evidence of the uselessness of having excised it. If caries be curable, why amputate the head of the bone? If incurable, why remove the head of the bone, and, at the same time, leave behind carious portions in the acetabulum, which cannot be removed?

Common sense and their unsuccessful results will, no doubt, ultimately show the impropriety of such operations.

Art. 51.—*Treatment of Hemorrhoidal Tumours.*

(*London Journal of Medicine*, Jan. 1849.)

A new method of treating hemorrhoidal tumours has lately been adopted by some surgeons of most extensive practice. The mode of treatment to which we refer, was first described as applicable to one particular form of the disease by Dr. Houston, in the twenty-third and twenty-sixth volumes of the 'Dublin Medical Journal,' March, 1843, pp. 94-119, and September, 1844, pp. 32-49. He there expressed a hope that the proposed plan might be found applicable to other forms of hemorrhoidal tumour; and this anticipation now appears likely to be fully realized. A pamphlet (being a reprint of a paper in the 'Medical Gazette') upon the subject, by Mr. Henry Lee, assistant-surgeon to King's College Hospital, containing the details of several cases successfully treated, is now before us. The advantages of the different methods are considered by Mr. Lee.

"The removal of hemorrhoidal tumours, either by ligature or excision," observes the author, "affords, when it can be had recourse to without danger, an easy and effectual remedy for the disease. But there are cases in which the common mode of operating is not unattended with danger; and it will not unfrequently happen that a patient wishes 'something to be done,' although he is unwilling to submit to the pain and inconvenience attending the ordinary operation. It will also occasionally happen, from some peculiarity of the constitution, either natural or acquired, that healthy, adhesive inflammation will not take place after a wound, however trifling, of the rectum. In such cases, the inflammatory action, not being circumscribed by the healthy effusion of lymph, is not confined to its intended work of reparation; and, instead of repairing the injury that has been done, becomes itself a new and formidable disease. This termination to the operation for the removal of piles is, unfortunately, too well known to require farther notice; but another result occasionally presents itself, which has not received the same attention from the profession, nor been so satisfactorily accounted for."

Cases are then given by Mr. Lee, in which pus was distinctly traced in the course of the hemorrhoidal veins, and in which secondary abscesses proved fatal. From these cases, Mr. Lee concludes that it is not always safe to place a ligature upon the enlarged veins of the rectum; and that, in the way the operation is usually performed (by passing a needle, armed with a ligature, through the base of the hemorrhoidal tumour), it must occasionally happen that one of the

larger veins of the rectum is transfixed, and its sides *held apart* by the ligatures tied on the opposite sides of the tumour.

To avoid any of the inconveniences mentioned, the new method of performing the operation is proposed. *It consists in destroying certain portions of the mucous membrane of the rectum "with the strongest nitric acid that can be procured."* The great advantage of this plan of treatment is supposed to consist in the circumstance that the acid, when applied to the mucous membrane, coagulates the blood in the veins of the part, and thereby effectually seals the vessels against the entrance of any foreign matter. Another advantage attending the use of the nitric acid is, that suppuration is not excited so soon, or to the same extent, as when a ligature is used; the portion of mucous membrane destroyed remains in contact with, and shields, the subjacent parts, till the adhesive inflammation has taken place.

The following conditions are to be observed with regard to the operation:

"1. When a considerable portion of mucous membrane is exposed, certain parts of it are to be selected, to which the application of the acid is to be confined. The effect of the acid may be regulated either by applying very small quantities at a time, or by shielding the surrounding surface with a paste made of chalk and water.

"2. Every portion of mucous membrane to which the acid extends, should be as completely deprived of vitality as possible, since the pain will necessarily be in proportion to the remaining sensibility in the parts.

"3. The degree of pain experienced in this operation depends, in a great measure, upon the part to which the nitric acid is applied. The sensibility of the thin skin around the anus is very great; and, if the acid is allowed to come in contact with it, the degree of tingling pain produced is very considerable; if care be taken, on the other hand, to confine the application of the acid to the comparatively insensible mucous membrane, a slight uneasy sensation in the lower part of the abdomen is generally all that is complained of.

"4. It is important to remark, that the benefit to be derived from such an operation must not be expected till the small ulcers made by the caustic begin to heal; the loose folds of mucous membrane are then drawn upon, and the whole of the mucous lining is rendered more tense. Each small cicatrix, moreover, serves as a permanent point of attachment for the relaxed membrane; and consequently the inner coat (which alone descends in such cases) is retained permanently in contact with the other coats of the bowel."

Art. 52.—*A New Mode of performing Lithotomy by the Rectum.* By M. Maisonneuve.

(*L'Union Médicale*, No. 63, and *Brit. and For. Medico-Chirurg. Review*, No. IV.)

An interesting case has been recently published, in which the operation performed by Sanson and Vacca was advantageously modified. After placing the patient (æt. 28) in the ordinary lithotomy position, and giving the catheter (with a very large groove) in charge of an

assistant, M. Maisonneuve, standing between the thighs, lodged the nail of his left index-finger, passed into the rectum, in the groove of the catheter, just anterior to the prostate. Along this finger he next slid a pointed bistoury, guarded by lint to within a centimetre of its end, and made a small incision through the rectum and membranous portion of the urethra. Still retaining his nail in the groove, he next passed in a double lithotome, with its concavity upwards, and having assured himself of its secure implantation in the groove, withdrew his index-finger, took hold of and slightly raised the catheter with his left hand, while with his right he opened the bladder with the lithotome. The catheter was now withdrawn, and the right hand so turned as to bring the concavity of the lithotome backwards. Next he introduced the index and middle fingers of the left hand above the lithotome, and separated the one from the other, so as to dilate the rectum and protect the sphincter while he withdrew the lithotome, the blades of which, separated fourteen lines from each other, made a bilateral incision in the prostate and rectum. The forceps were then passed along the forefinger, and the stone removed.

The patient recovered so rapidly, as to be sitting in the yard on the fourth day, and he was exhibited at the academy after a long walk, on the ninth. A urinary fistula still remained, when he returned to the country on the seventeenth day, but this subsequently healed. This operation differs from that of Sanson and Vacca by leaving the lower end of the rectum, the sphincter, and the perineum untouched; and this prevention of the exposure of the wound to external influences, places it very much in the same category with the subcutaneous incisions.

ART. 53.—*Description and Engravings of a new and readily-procured Implement for plugging the Nostril.* By C. EDWARDS, M.D., M.R.C.S.E., Cheltenham.

(*Lancet*, Feb. 3, 1849.)

Mr. Edwards has forwarded to the 'Lancet' the description and drawing of a new implement and method of plugging the nostril, devoid of all complication; the same instrument acting as probe, ligature, and blunt hook, and by which an operation, often tedious, or at least troublesome, may be completed in a few seconds. (See opposite page.)

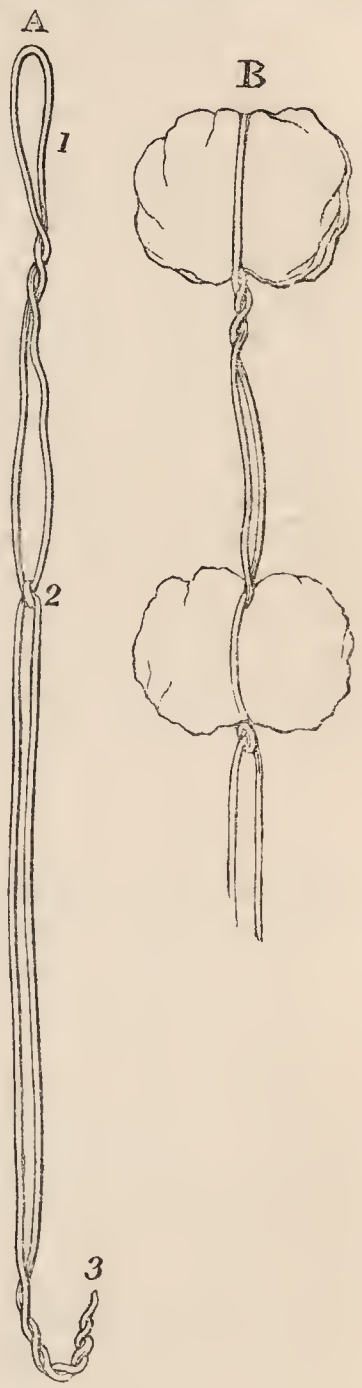
The origin of the instrument was as follows:—In passing through the country, he was hastily called to visit an elderly female, almost pulseless from violent and protracted epistaxis, and on former occasions having adopted the late Mr. Liston's method, he accordingly asked for a piece of wire, to convey a thread ligature from the mouth. The only wire to be had was a piece of wire riband, which a woman tore from her cap. This he at first rejected, but afterwards used, and by it then, and several times since, has been enabled to perform the following elegant and simple operation.

1. *To construct the instrument:* Take a piece of wire riband, and cut out a single wire about thirty inches in length; double it, and

form a space, by two or three twists, at a sufficient distance from the middle of the duplicature, when expanded, to inclose a proper plug of lint or sponge. From the extremity of this space, at the distance of the anterior and posterior nares, say about three inches, make the first noose of a knot, and then place the ends parallel their remaining length, except at their extremities, which are to be twisted together, and then bent into a hook.

2. *To operate:* Pass the extremity which is to contain the plug along the floor of the nostrils, it will be found to project into the pharynx. At this point of the operation, by every old method, including Liston's, I have often had trouble in finding the extremity of the wire or threaded probe among the clots, which difficulty has suggested the watch-spring instruments of the shops, which is not always at hand, nor, henceforth, need be. Now fasten the hook formed at the extremity of the wire, and which projects anteriorly out of the nose through the mouth, into the projecting loop in the pharynx; and, having drawn it out of the mouth, include as much lint as will suffice for a plug, securing it simply by twisting. Now retract it above the velum pendulum palati into the posterior nares, till the progress of the plug is arrested; next separate the ends hanging from the anterior nares, place a second plug between them, pressing it up to the noose previously mentioned, and securing this by a common knot, we finish the operation.

The advantages of this instrument are thus obvious—viz. the facility of obtaining its material in the poorest cottage upon an emergency; its projecting into the pharynx quite as well as the watch-spring instrument of the shops, thus rendering the operation almost momentary; its being strong enough to pass as a probe, and sufficiently delicate to tie as a ligature. Further, the way whereby the posterior plug is secured by twisting, enables the operator to increase the size of the plug instantly, should it be found too small, and accidentally be drawn through the anterior nares, which accident, were the plug secured by a knotted thread, would complicate the old, troublesome, and sometimes tedious operation.



A, Instrument ready for operation—should be about 15 inches long.

B, The same after operation, inclosing the posterior plug by torsion, the anterior by knot, the ends cut off at anterior nares.

1, Duplicature for posterior plug.

2, Noose for anterior plug.

3, Hook to draw the duplicature from pharynx.

ART. 54.—*Simple Dislocation of the Astragalus: its Reduction, by Division of the Tendo-Achillis.* By J. G. CROSSE, F.R.C.S.

(Communicated to the Norwich Pathological Society, Oct. 12, 1848.)

Mr. Crosse gave the history of this case, which had been admitted under him in the Norfolk and Norwich Hospital. The patient had been thrown out of a dog-cart, but could give no description of the way in which he fell. Upon his admission the limb presented all the symptoms of dislocation of the astragalus, the sole of the foot being turned inwards, and the foot resting upon its outer edge, while that end of the astragalus which articulates with the os naviculare, was dislocated upwards and outwards, lying just under the skin. Neither tibia nor fibula were fractured. In reducing it, extension was made from the knee direct, and the heel grasped by assistants, who applied their force in this direction with one hand, the other being placed upon the dorsum of the foot, he at the same time endeavouring to favour the return of the bone by immediate pressure on the dislocated end. To these means it yielded but slightly, and finding the tendo-Achillis very tense, he divided it with a tenotomy knife, and upon resuming the extension, the bone was returned somewhat suddenly into its place after a few minutes, and the shape of the limb quite restored.

Prov. Med. and Surg. Journal, Dec. 13, 1848.

ART. 55.—*Extensive Ulceration of the Perineum, of Syphilitic Origin, cured by large doses of Conium, after the unsuccessful employment of various other remedies.* By E. A. LLOYD, Surgeon to St. Bartholomew's Hospital.

(*Medical Times*, Jan. 6, 1849.)

John Frost, æt. 22, a bricklayer, of temperate habits, middle height, rather robust, light hair, and florid complexion, was admitted into the hospital December 9, 1847. He had a large sore on the left side of the perineum, not deeper than the cellular tissue immediately beneath the skin, but extending from the scrotum to the side of the anus, and encroaching on the inner part of the left thigh, being bounded in front, and on the inside, by recent cicatrices of the groin and side of the scrotum. The surface of the sore was dull and livid; the discharge thin and watery, without the appearance of pus. Its edges were irregular, hard, and overhanging the surface. This ulcer had been situated in the perineum for five months.

History.—In the summer of 1846 he had a sore on the body of the penis, which healed in three months without medicine. Shortly after this another sore appeared on the prepuce, which remained open eight months, and was accompanied with a bubo in the left groin. With this sore and bubo he entered the Lock Hospital on May 6, 1847. He there took Plummer's pill; his mouth was made tender; the sore and bubo healed. Before he left the hospital a copper-coloured eruption spread over his body; this was cured on his mouth being again affected with mercury, but was soon followed by a swelling on the left side of the scrotum, which terminated in an ulcer. This healed anteriorly to-

wards the groin, while it spread backwards into the perineum, and continued to increase. He left the Lock Hospital on December 9, and entered St. Bartholomew's on the same day. The sore then presented the characters described above. His mouth was tender from the use of mercury.

On his admission he was ordered a mild aperient every other night, a linseed poultice to the sore, meat diet, and perfect rest in bed.

Dec. 27. Applied the nitrate of silver to the sore, introducing it freely under the overhanging edges.

Jan. 3, 1848. The nitrate of silver has produced no material effect on the sore. He is ordered to take the following draught three times a day:—Potas. iodidi, gr. v; tinct. iodinii comp., M. x; aquæ destill., ℥viij M.; and to apply zinc ointment to the sore.

(The above medicine is ordered to be taken in a large quantity of water, in order to make it less likely to disagree with the stomach.)

From Jan. 31 to Feb. 5. Calomel was daily sprinkled on the sore. The draught continued.

Feb. 10. The potassa fusa was freely applied. To continue the draught.

Feb. 24. As it continued to spread, though slowly, and the various caustics had not altered its condition, the previous medicine was discontinued, and he was ordered pil. hydrarg., gr. v, three times a day. Ung. hydrarg. nitrico-oxydi to be applied instead of the zinc ointment.

April 13. The pills have been persevered in up to the present time without benefit. Mouth not affected. Leave off the pil. hydr. and take hydr. iodidi, gr. j, in the form of a pill, four times a day. Continue the ointment.

May 22. Since the last date the following applications have been tried, without changing the aspect of the sore. First, the strong nitric acid, which did not seem to have the power of penetrating its callous and diseased structure, neither did it give rise to the pain that usually follows such an application; secondly, cinnabar fumigations.

These medicines were left off, and he was ordered to take again the iodide of potash, and apply a lotion composed of two grains of sulphate of copper to an ounce of distilled water.

May 29. The sore is now somewhat larger than it was when the patient came into the hospital. It also occupies a position posterior to its former one, being situated more on the buttock and posterior parts of the thigh, and extending beyond the anus. Its form is semilunar. There is a remarkable difference between its two sides or margins, the one healing, the other spreading. The former (that nearest the scrotum) presents a smooth and almost rounded edge, level with the ulcerated surface, while the latter is hard, rough, and irregular, raised above the surrounding skin, and overhanging the ulcer. It is not accompanied with inflammation, nor is it painful. The discharge from it is still thin and watery. There are no granulations on its surface. It has not secreted any pus. It has spread by ulceration, and not by sloughing. It has not increased in depth.

There is now also a fresh sore on the right buttock, about the size of a five-shilling piece, and exactly similar to the one on the left side. In case it should be thought that this may have arisen from contact

with that on the left side, I must state that they are too far apart to be made to touch each other.

A gentleman who was going round the hospital remarked, that he had seen a case exactly similar to this cured by large doses of conium, this medicine being gradually increased until the patient took 120 grains daily. Mr. Lloyd determined to employ this medicine, and ordered extract. conii, gr. v, three times a day.

This was commenced on May 30, and continued without intermission, the dose being increased every four or seven days, until September 18th, when the sores were healed. During this period (112 days) the patient took fifty-seven ounces and two drachms of conium; the first and smallest dose being fifteen grains of the extract daily, while the largest was seven drachms daily, and was continued for seven days. (See the Table, which shows the quantity taken each day.) When the sore had healed, the medicine was reduced to six drachms daily; in the space of a week it was diminished to one drachm daily, and so gradually discontinued.

A Table, *showing the quantity of Conium taken each day.*

Dose taken daily.	Number of Days it was continued.	Total.
15 grains.	3	45 grains.
30 ,,	4	120 ,,
45 ,,	3	135 ,,
60 ,,	4	240 ,,
75 ,,	3	225 ,,
90 ,,	4	360 ,,
105 ,,	3	315 ,,
120 ,,	7	840 ,,
150 ,,	9	1,350 ,,
180 ,,	2	360 ,,
210 ,,	3	630 ,,
240 ,,	4	960 ,,
240 ,,	3	720 ,,
270 ,,	7	1,890 ,,
300 ,,	4	1,200 ,,
300 ,,	3	900 ,,
330 ,,	7	2,310 ,,
360 ,,	7	2,520 ,,
360 ,,	4	1,440 ,,
360 ,,	7	2,520 ,,
390 ,,	7	2,730 ,,
390 ,,	3	1,170 ,,
390 ,,	4	1,560 ,,
420 ,,	7	2,940 ,,
Total	112	27,480=57 oz. and 2 dr.

The effects of this medicine were sensations of fulness in the head, accompanied by giddiness, also heaviness of the eyes, on account of

which he often found it difficult to read. He said it used to make him feel as if he had been smoking an unusually large quantity of tobacco. These sensations were most apparent when the dose was increased, and they invariably diminished as he got accustomed to the quantity taken, which was the case in four or five days or more. He never experienced any decided inconvenience from the medicine; it did not make his head ache, interfere with his appetite, disorder his intellect, nor did it make him sleepy; but while he was taking it he gained health and strength, and improved in general appearance. Slight relaxation of the bowels occasionally took place; this was always cured by chalk medicine, without opium, the hemlock being given at the same time. Simple ointment was the only dressing applied.

Sept. 26. He left the hospital.

Oct. 2. He remains quite well, and has returned to his work.

Remarks.—An ulcerating bubo of this description is not uncommon in a London hospital. Its peculiarities are, that it is a sore following the venereal disease, exceedingly difficult to heal by the use of mercury or any of the usual remedies. It generally occurs in scrofulous persons, or those whose health has been impaired by syphilis, or possibly by the use of mercury, or the confinement of an hospital. Its seat is the cellular tissue immediately beneath the skin, and it does not extend deeper than this structure. It generally spreads on one side, while it heals on the opposite: hence it is called by some surgeons "creeping bubo." Sores of this kind are described by Sir E. Home as "obstinate irritable ulcers." They very much resemble some forms of cancer; this was very remarkable in the case related. Its general appearance described on May 29, is that which is usually presented by these sores. The most interesting peculiarity of this case was the success of the remedy,—a remedy not often employed to a similar extent. Some useful information on the effects of conium is given by Dr. Earle, in the 'American Journal,' July 1845. They are the result of a series of experiments made on himself, and confirm what we see recorded in other cases, namely, that the dose of this medicine may be gradually increased, to what may seem an almost unlimited extent, without danger; that if the dose is not increased, in a few days the patient becomes accustomed to it, and it ceases to produce its usual effect on the constitution. This was very remarkable in the present case. The medicine produced its usual effects every time the quantity was increased; these would last only a few days, when it had to be again increased, because it was found, by repeated observation, that the healing of the sore invariably stopped when the patient was accustomed to the dose he was taking; this also proved that it was the hemlock, and not accidental concurrent circumstances, that cured the ulcer.

Art. 56.—*New Method of treating Urethral Pains following Gonorrhœa.* By M. Vidal (de Cassis.)

(*L'Union Médicale*, Oct. 7, 1848, and *Monthly Journal*, Feb. 1849.)

After stating the frequent occurrence of severe persistent pain in the course of the urethra, after all traces of discharge have completely

ceased, M. Vidal mentions that, having frequently remarked that the pains were relieved by pressing the penis with the fingers, he was led to the idea of treating these cases by compression, and has found the plan useful, affording a perfect cure in many cases, and a marked alleviation in others. The operative procedure, says M. Vidal, is so simple, that it is scarcely necessary to mention it. "The surgeon takes a long strip of diachylon plaster, one centimetre (two fifths of an inch) in breadth, and rolls it around the penis in the same manner as a common bandage, beginning at the glans; or, still better, he may apply it more accurately by using a number of small strips of plaster, each of which shall only be sufficient to encircle the organ once, and the two extremities of which strip should be made to cross upon the urethra, for the purpose of insuring the firmness of the dressing. The principal point to be attended to is the degree of compression, which ought to be as firm as possible, without interfering with micturition, which would, of course, necessitate the removal of the dressings. The compression should be continued for a considerable period after the cessation of the pains, to prevent their return." M. Vidal cites two cases, from amongst a great number which he has treated, in favour of this mode of practice.

ART. 57.—*On the Efficacy of the Sulphate of Bebeerine in Strumous Ophthalmia.* By HENRY LLEWELLYN WILLIAMS, M.D.

(*Prov. Med. and Surg. Journal*, Oct. 18, 1848.)

Scrofulous affections are most certainly on the increase; nor is this so much to be wondered at, when we take into consideration the existence of many things likely to favour and promote such complaints,—such as an enlarged population, without a proportionate increased means of support, and the close unhealthy houses in which the children of the poor are huddled together in a state of abject filth. It is not, however, the object of this paper to enter upon a discussion of the cause of affections of this nature being more frequent than they formerly were; suffice it to say, such is the case.

Of scrofulous affections, none are more frequent and troublesome to contend with than strumous ophthalmia, occurring generally between the periods of infancy and puberty. In our large towns it is so common an affection, that of ten cases of inflammation of the eye, eight will be of this kind. It is known by several different names: thus it has been termed pustular, from the appearance of a number of minute pustules upon the surface of the organ; it has also by Dr. Mackenzie been called phlyctenular ophthalmia, as he believed it to affect the conjunctiva not so much as a mucous membrane as a continuation of the skin. It is a disease, as its name implies, intimately connected with the scrofulous constitution, the external marks of which every medical man is acquainted with. The fair complexion, the thin integument, the distinctness with which the ramifications of the cutaneous veins are seen, the short and thickened upper lip, the red or sandy hair, are some of the most prominent features of this state of constitution.

Scrofulous ophthalmia is most prevalent from the time of weaning

to about the age of eight. There is usually only *slight* redness of the conjunctiva, sometimes confined to that lining the lids, occasionally extending to the covering of the globe. There is always great intolerance of light; little prominences or pustules form on the surface of the conjunctiva generally; a few vessels collected into little bundles are seen proceeding from the same point of the circumference,—more frequently from the angles of the eye than from any other point,—towards the cornea, and at their termination, the small elevations which have obtained the name of pustules are discernible. They are more frequent at the junction between the sclerotic and the cornea, or near that line. These pustules may become absorbed, and leave behind a temporary white speck; often they break, and form ulcers. When these ulcers are situated beyond the cornea, they are of little consequence, but when on the cornea, they call for more attention, as danger may result in two ways,—either by penetration of the cornea, permitting the escape of the aqueous humour and prolapsus iridis; or after cicatrization has taken place, a permanent white spot may remain, which will interfere more or less with the patient's vision, according to its size. I may be permitted to take this opportunity of cautioning practitioners against the indiscriminate use of acetate of lead, as a collyrium in this affection, for I have seen more cases than one where the ulcer has become the seat of a white deposit of sulphate of lead, from the employment of this wash, and which, of course, results in permanent opacity. The great intolerance of light is a very prominent symptom of this disease, and sometimes it is really the only symptom that manifests itself; the child will skulk all day in dark corners, so great is its dread of the approach of light. If brought to the window, he holds down his head, and presses his hands or arms before his eyes. Children affected with this disease carry it legibly written in their physiognomy. The child's brow is knit and contracted, and those muscles of the face are instinctively called into action, which tend to exclude the light without quite shutting out the perception of objects. The attempt to open the eye is accompanied by profuse lachrymation. The tears pass partly over the skin, which they sometimes inflame and excoriate; frequently pustules arise, and produce a discharge, which, forming a crust on the cheek, often extends to the forehead and temples. This *crustea lactea* is very characteristic of the scrofulous habit.

The treatment hitherto found of the greatest benefit, after the free evacuation of the alimentary canal, has been counter-irritation, combined with tonics. Leeches in a very acute attack may be sometimes necessary; but generally by reducing the system, when it will not bear reduction, they have tended rather to retard than promote recovery.

Dr Mackenzie has strongly recommended the use of quinine as the best tonic, in which opinion he is supported by Mr. Lawrence, who says he has frequently seen it act "quite like a charm;" in these cases no one will therefore question the utility of tonics. It is my purpose in this communication to draw the attention of the profession to the superiority of the sulphate of bebeerine* to the sulphate of quinine,

* For an account of the medicinal properties of bebeerine, see Dr. Douglas Maclagan's papers on the subject in the 'Edinburgh Medical and Surgical Journal,' April 1845; also 'Monthly Journal of Medical Science,' August 1843.

not only on account of the moderate price of this drug as compared with quinine, which is in itself a strong recommendation, especially in dispensary practice, but also because, according to the testimony of Dr. Douglas Maclagan and others, it is better adapted to some constitutions and affections than quinine, not being so liable to excite the circulation or affect the nervous system. The following case, one out of many that I have had under my care, will illustrate its beneficial effects:

Strumous ophthalmia treated by the sulphate of bebeerine; cure.—J. L., 8 years of age, was seen on the 17th of July; the child presented all the characteristic features of the strumous diathesis. He was much emaciated. His mother informed me he had a similar attack two years previously, since which time there has been some intolerance of light. The conjunctiva lining the lids was very vascular; the margin of the cornea of the right eye presented a number of minute phlyctenulæ. He was ordered a purge with calomel and rhubarb, a blister behind the ear, and warm water to the eye.

20th. The appearance of the eye much the same; the other becoming affected. To repeat the purge, and take two grains of sulphate of bebeerine night and morning. Strict attention to his diet insisted on.

23d. Blister behind the left ear, as the corresponding eye presented two or three well-marked ulcers on the cornea. To continue the bebeerine.

27th. A lotion was ordered with two grains of sulphate of alum to the ounce, which was alternated with the sulphate of zinc. He continued to take the bebeerine upwards of three weeks; after that time, he was discharged cured, the ulcers being healed, and the intolerance of light quite abated.

Art. 58.—*Excerpta from a Clinical Lecture on Gonorrhœal Ophthalmia.* By H. Haynes Walton, f.r.c.s.

(*Medical Times*, Nov. 4, 1848.)

Nature and progress of the disease.—The term "gonorrhœal ophthalmia" is, I suppose, familiar to you; but do not consider that it is a common complaint—far otherwise. And this is the more surprising, when we reflect that there are few men in the patient's rank of society—I shall say nothing of the higher classes—who have not had clap at some period of their lives, and many are repeatedly clapped. It is equally a mystery why both eyes are seldom attacked; for putting aside the probability of both being inoculated at once from the same source, from the proximity of these organs, and the consequent facility with which infection may be conveyed from the affected to the sound eye, particularly in the commencement, when the sufferer is ignorant of the communicability of his disorder, and is careless, one would regard it as an occurrence of the greatest likelihood.

Gonorrhœal ophthalmia is greatly dreaded from its rapid destructiveness; cases have been seen where, in twenty-four hours, all chance of recovery has been lost. A few months ago, a patient applied here with his eye destroyed on the third day after the infection. I must tell you, that its ravages do not depend on the whole globe being involved in inflammation and disorganization ensuing, although this may happen, but on effects which it produces in the cornea—such as ulceration, sloughing, deposit of pus between its layers; the termination of these being penetration of the cornea, with more or less of loss of

the humours of the eye, and prolapse of the iris, or opacity of the cornea, the remains of reparation, after some of superficies have been lost, just as you saw in the left eye. There is yet another effect exemplified in this patient,—atrophy of the cornea; this happens as well in other inflammatory affections, and occasionally the entire globe gets shrunken.

Origin.—About the origin of this disease much has been written, and diversity of opinions yet prevail. I need hardly tell you that it is a well-ascertained fact, that purulent discharge from the urethra, or clap matter, will, when applied to the conjunctiva, produce the disease we are considering. Some of you may remember that a patient came to the hospital a few months ago with gonorrhœal ophthalmia, the result of bathing his eye (which was affected with chronic ophthalmia) with his urine, while a clap was on him. The same holds good whether the inoculation is from the same individual, or from another, although Vetch thought differently. To metastasis has it been attributed, and, what is stranger still, there is "gonorrhœal ophthalmia without metastasis or inoculation" spoken of. By this is meant that the gonorrhœa and the ophthalmia are one and the same disease, and that, without any metastasis or inoculation, one passes into the other. I have no faith in the metastasis; and as to the last supposed mode, or origin of the disease, I receive it as great twaddle. I do not see why, because, in the majority of instances, we cannot trace the application of gonorrhœal matter to the eye, we should overlook or discard the greater probability of inoculation.

Diagnosis.—No doubt the question has occurred to you.—How are we to distinguish gonorrhœal ophthalmia from other puriform discharges of the eye, and in what respect do they differ? I believe that they are one and the same sort of disease, notwithstanding their different modes of origin, differing only in degree or intensity. You know that scarcely a day passes without patients presenting themselves here with catarrhal ophthalmia, and that, for the most part, it is an affection yielding quickly to topical remedies. It is the mild form of the purulent ophthalmia which you see in infants and adults; in the latter also called Egyptian, or contagious ophthalmia. Now, the gonorrhœal variety, although closely allied to the latter, is even a more aggravated malady, its termination being more disastrous; but the diagnosis must rest on the history of the case, and an examination of the urethra, since there are no set of symptoms proper to either that can be depended on, and the more particularly when the patient is seen at a late period of the disease. If you have suspicions that clap exists, and it is likely that the patient's statement is questionable, request, or even demand, an examination of the penis. It is astonishing what lies men will give utterance to, in order to conceal the existence of a pox or a clap from a medical man, when a knowledge of its occurrence is of great importance. You must recollect that, although the symptoms are so much alike, a diagnosis, if it can be made, is valuable, for you are then the more prepared to check a malady which I have told you is the most dreadful of the purulent ophthalmiæ. The best observers state that purulent ophthalmia of adults commences in inflammation of the lids, which then spreads to the conjunctiva of the globe; but in the gonorrhœal form the reverse is the case, the correct-

ness of which I have verified; and hence perhaps the greater amount of chemosis in the latter, and therefore the greater probability of sloughing, or ulceration of the cornea. Also, that the second eye seldom escapes in the Egyptian ophthalmia, and in it the lids are more swelled and inflamed. One of the peculiarities of this case is, that both eyes were affected.

Treatment.—The treatment should form a very important part of our consideration, both on account of the direful end of the affection when left to itself, and the small success that generally attends attempts to control it.

Fortunately, within the last few years, much knowledge has been obtained, whereby its termination has been rendered more favorable, or, in other words, its treatment is better understood; it is not now generally considered necessary to reduce a patient to death's door to attempt to cure his complaint, and, after all, to do more harm than good. For this, and indeed for much that is valuable in the treatment of eye diseases, we are greatly indebted to Mr. Tyrrell. It is surprising, however, with what tenacity some of the old ophthalmic surgeons adhere to the "strict antiphlogistic system" of treatment, of which bloodletting is the principal means. Their want of success seems to render them the more desperate. Mr. Morgan used to tell his pupils, that to control this disease it was necessary to produce a degree of depression very little short of that occasioned by profuse and continued hemorrhage.

I do not condemn the judicious employment of depletion, even bloodletting. It is the abuse of it by excess, together with its adoption when it cannot do good, and will probably do harm, that I reprobate. Now I will tell you when to deplete; when the patient can bear it, i. e. when the circulation is greater than natural. But do not attempt it if there should be any contra-indication,—and I particularly allude to a depressed condition of the vital powers; neither must you reduce your patient too low when you deplete; if the circulation be brought just under what is considered the standard of health that will suffice. Depend on it that, for reparative action to ensue, there must be a certain amount of power, not too much, or too little, and only practice and close observation can teach the surgeon this nice point. Local bleeding is almost always required, either in the form of cupping or leeching; I prefer the former, but this case did not even call for that.

From the local application of stimuli and astringents great good is effected, and in the early stage of the disease, if the patient be brought into the condition I have described, will suffice, but beyond that we must seek for something else. I shall give you Mr. Tyrrell's opinion here, and I do it with satisfaction, because I had the opportunity of seeing his practice for several years, and have personally confirmed its correctness.

He says that, when the chemosis is incomplete, which can only be in the early stage, and I must remark, that the danger of the cornea suffering is in proportion to the amount of chemosis, the measures I have described will suffice to cut short the disease, but not so when complete; and, as regards depressing the patient, he has often seen it carried to an extreme degree unavailingly; and further, he is satisfied that the excessive depletion he used to adopt and witness often tended to hasten an unfavorable termination of the disease, and during several

years he had watched many cases in which the chemosis was complete, and not in a single instance did the cornea escape, in spite of active general and local depletion, and the local application of the strongest stimuli or astringents. As if to be more impressive on the subject, he goes into the case of a male adult, both eyes chemosed, one with a clear cornea. He was bled twice to fainting in twelve hours, and had thirty leeches applied, added to which he was kept nauseated, and took calomel and opium every six hours, the bowels being freely acted on before the exhibition of the latter medicine; yet both corneæ sloughed.

What practice, then, are we to adopt when the chemosis is entire? Why, to cut through the chemosed conjunctiva in several places. You must have seen me adopt this line of practice in such cases. I pointed out to you before the lecture some of the marks of the cuts in this patient. It had been recommended before Mr. Tyrrell's time to "excise and incise" the chemosed conjunctiva, but not after his plan, and from which he and others have experienced such good results. It is not necessary to examine Mr. Tyrrell's theory about the cornea perishing by reason of its nutritious supply being cut off by strangulation; and however much that may be questioned, the beneficial effect of his practice has been fully attested. His method is to divide the conjunctiva and the subjacent cellular membrane from the cornea, in a direction between the two attachments of the recti muscles, making two incisions in each of these positions, and carrying the incision towards the edge of the orbit, avoiding immediately the transverse and perpendicular diameter of the globe; that the larger vessels passing to the globe may not be injured. His observations on its success are, that a hazy cornea that still reflects light will probably be restored to its original integrity, or suffer but triflingly; that even when the cornea has in part lost its vitality, the extension of mortification will be checked, and the yet healthy portion will be saved. The latter statement we have this day had a proof of. He thinks that its beneficial operation is not increased by means tending to depress the general power, nor likely to be interfered with, but by the two conditions of great excess of arterial action with fever, and extreme feebleness of vascular power.

With the conjunctiva entirely chemosed, you are as well to direct your attention to the general condition of the system, and to carry out those views that I have propounded, when treating of the early condition of the affection. You must support if too low, and deplete if there be more power than I have described. The best plan, if the latter be required, is, to produce a quick impression on the articulation, by the abstraction of blood from the arm. Usually, six or eight ounces will suffice, and to produce further effect, if occasion require, as well as to maintain the desired state, employ purgatives, or nauseating medicines.

Not long since, a private patient was brought to me, with gonorrhœal ophthalmia in one eye. There was entire chemosis, and the cornea slightly hazy. He was aged 18, with hard pulse, and feverish. I bled him to eight ounces, divided the chemosis, and ordered him an aperient draught and local stimuli. His circulation, which was at first reduced, again rose. I now purged him till it was brought to the state I desired. The result was complete. His eye was quite restored.

It is, I think, easier and safer, after the lancet has been once used, to regulate the state of the circulation by the means mentioned, than to resort to a second bloodletting, or to take a large quantity of blood at first.

The advocates for large bleedings say, that the after-condition of their patients is not the worse for it. This is not true, either as regards the general health or the affected organ. On the latter point, Mr. Tyrrell's evidence is—"Since I have abandoned the means which are calculated rapidly to exhaust the general power, I have not had to combat an obstinate chronic stage of the disease, which formerly was of frequent occurrence, and generally troublesome in proportion to the severity of the means used to check the acute disease, and its effects upon the system." (Tyrrell on the Eye, p. 94.) You must have remarked that I employed a mild local astringent. I do not confine myself to alum, but use other things; among them nitrate of silver, the latter not stronger, however, than two or three grains to the ounce. I attach the greatest importance to the *frequent* use of the lotion, and before each application the purulent secretion should be removed, as far as practicable, with a soft rag and warm water. I firmly believe that all applications to the conjunctiva that produce actual pain are productive of harm; they greatly irritate that membrane, and if persisted in produce troublesome chronic inflammation. If you take the trouble to follow out cases where burning applications are used, and particularly strong solutions of nitrate of silver, you will see the truth of what I say.

I must just make one remark about the division of the chemosis. I do not always select the spot where Mr. Tyrrell directs the incisions to be made, between the attachment of the recti; but invariably observe the direction he advises, from the cornea to the margin of the orbit. The form of knife best suited, is one like this—a small curved bistoury; and as to its use, you must introduce it just where the chemosed membrane overlaps the cornea, and carry the point through the entire thickness of the swelling to the palpebral sinus, taking care not to injure the sclerotic coat; then depress your hand, and make it cut its way out. I am of opinion that these incisions may be advantageously employed more than once in the same case, and that they are useful even when the conjunctiva is not entirely chemosed. I have carried out that practice in this instance.

SECT. IV.—RARE SURGICAL CASES.

ART. 59.—*Case of Congenital Glossocele, or Hypertrophied Tongue, cured by Operation.* By W. G. DELANEY, M.D.

(*American Journal of Medical Science*, Oct. 1848.)

A female, æt. 20, was born with the tongue protruding from the mouth. It had grown with her growth, and become a constant nuisance as well as a disgusting sight. She is finely formed and intelligent. The tongue protruded four inches, and measured seven inches in circumference. A deep linear fissure occupied the dorsum of the tongue in its whole length. The protruded portion was quite dark, owing to the number of vesicles filled with blood; and the part in the cavity of the mouth was also covered with these vesicles, and enlarged papillæ,

but in a lesser degree. The substance of the tongue was extremely hard, and scarcely susceptible of pain, and was constantly pouring out a profuse, viscid, and offensive exudation. The tongue could not be retained in the mouth except for a moment, as its intrusion filled the whole cavity of the fauces, and prevented respiration.

The inferior maxillary bone was natural in form, except at the symphysis, where the incisors and canine teeth were separated half an inch, and inclined outwards by the constant pressure and weight of the tongue. The lower teeth were covered with tartar, and rather loose in their sockets, and the lower lip everted on the chin.

She had never been able to masticate with her tongue in the mouth, and consequently lived mostly upon fluids. She was subject to painful periodical swellings of the tongue, every six weeks or two months, during which time she would almost reach the point of starvation, from absolute impossibility to swallow any nourishment for a number of days. During these periodical turns (which had no connexion with the menstrual discharge, the latter being always regular) profuse hemorrhage would sometimes take place from the tongue, which at these times looked, as she expressed it, as black as my hat. She could make herself understood, though her words were very thick, and given with a lisping utterance. My advice was requested in this painful case, with the promise that it would be acceded to in all things.

Having decided to operate, on the 30th May last, assisted by Dr. Oliver, of Portsmouth, I operated in the following manner:—The patient being seated in a chair, her head supported by one assistant, and hands secured by others, I forcibly drew the tongue outwards and downwards by a strong forceps, commenced a Λ shaped incision with a bistoury on the left side, carried it to the median line a little inside of the upper incisors, turned and cut outwards.

Thus, with two strokes I excised the part, which was of great density and hardness. A formidable jet of blood immediately issued from the dorsal and ranine arteries, which were, of course, preternaturally enlarged.

I tried to control the hemorrhage by torsion, which failed, as the arteries were so impacted in the surrounding substance that I could not draw them out. Compression was quite as unsuccessful; dossils of lint, wetted with iced alum water, were no better, and so I proceeded to tie the dorsal and ranine arteries, which I did without trouble, and thus effectually stopped the hemorrhage.

The patient all this time suffered so little pain, that the moment the arteries were secured she jumped up and ran to the mirror, to see the effect of the operation. The ligatures were cut off close to the knot, hoping that in their course outward the suppuration might tend to lessen the great thickness of the tongue.

The flaps were now brought together (the coagula having been carefully removed with iced alum water), and secured with four interrupted sutures. When this was done, the tongue was of good shape, and no point of cut surface remained exposed. Length of tongue removed, two inches and three quarters. For nine hours after the operation the tongue remained within the mouth; inflammation and swelling then set in, and protruded it. The only dressing applied was a dossil of lint, wetted with ice water. There was no secondary hemorrhage. On the sixth day three of the sutures were removed, and

on the 20th complete union had taken place by the first intention. The turn of periodical discharge had come round by this time, and the tongue became slightly swollen, and the sub-maxillary gland of the left side very much so. The application of half a dozen leeches, with saline purging, quickly subdued this attack. The patient had been put upon the tincture of iodine, and it was continued with benefit.

On the 5th inst. the patient, for the first time in her life, chewed with the tongue in the mouth. It is now kept within the teeth, like any normal tongue, and protruded with but slight difficulty. The exudation is very trifling—not sufficient to afford the slightest inconvenience, and altogether deprived of unpleasant odour. On the 10th inst. I had occasion to remove the lower incisor teeth, their horizontal projection having caused ulcers in the lower lip, which has now assumed its natural position, and completely closes the mouth. On the 25th of July she paid me a visit at the Navy Yard, and I take pleasure in saying, that a more comely-looking girl, or one better pleased with her own altered condition, can rarely be found.

Art. 60.—*Fracture of the Neck of the Femur within the Capsule—Bony Union.*

(*American Journal of Medical Science*, July 1848.)

Dr. Condit reports a case of fracture of the neck of the femur, in a man, aged 80. The accident happened in May, and the patient died in November following. The following are the *post-mortem* appearances:

The muscles and other structures around the cervix femoris were more pale than usual; the capsular ligament was entire, giving no appearance of laceration. The ligamentum teres was vascular; the acetabulum was normal in appearance. The neck of the femur was shortened, and the fracture was discovered to be wholly within it. The head of the bone had been broken across transversely, exactly where it joins the neck. The ridge, characteristic of the seat of fracture, had been thrown out, and the reunion was firm for more than three quarters of the circumference of the bone. The limb having been drawn up by the contraction of the muscles, a considerable angle was formed by the head and neck at their point of juncture, but they were as firmly united by osseous formation as if they never were separated. On the upper side, where the fractured edges were not in apposition, union was not yet complete, but ossification was going on upon all the broken surface, and had the patient lived a few months, would doubtless have been perfected. Could the state of the injured part have been by any means ascertained, and had not the condition of the ankle forbidden it, the patient, I think, might safely have walked; there was sufficient firmness at the fracture for the limb to have contributed its share of support to the trunk From a fear lest some accident should befall the specimen in handling it, I left it with a mechanic to have the head protected by a covering wire. He placed it for safe keeping in a desk in his room, belonging to another man, who, removing the desk in his absence, threw out the bone, supposing it to be of no value, and though diligent search was made, it was not recovered. I had the preparation in my possession for two or three years, and during that time it was shown to many members of the profession, who expressed but one

opinion, that it was a case in which a complete fracture entirely within the capsule was reunited by ossification.

ART. 61.—*Successful Reduction of a Dislocation forwards of the Inferior Surface of the Fifth Cervical Vertebra.* By M. VRIGNOUNEAU.

(*Journal de Connaiss. Medico-Chir.; L'Union Médicale,* tom. ii, No. 88; and *Edin. Medical Journal,* Nov. 1848.)

The patient fell from a tree, on his head, and lost consciousness, which, however, returned in half an hour; he then complained of violent pain at the vertex and back of the neck; the author diagnosed—how he does not say—a dislocation forwards of the inferior surface of the fifth cervical vertebra. He bled the man, and ordered absolute rest, but without avail; and forty hours subsequently—speech having become difficult, the face injected, the respiration stertorous, and the pulse almost imperceptible—he determined to give him the chance of an attempt at reduction. For this purpose the man was seated, two assistants pressing firmly, one on each shoulder, while M. Vrignouneau gently extended the neck. Partial extension rendered the speech stronger, and respiration freer, and emboldened the operator to proceed further. When he thought the extension sufficient, he carried the head and superior part of the neck backwards; this manipulation was followed by a snap, and from that moment the man recovered as by enchantment.

ART. 62.—*Compound Dislocation of the Right Humerus.* By H. HAYNES WALTON, F.R.C.S.

(*Medical Times,* Nov. 18, 1848.)

My attention having been recently directed to dislocations of the shoulder, it occurred to me that it would be advantageous to make public a case of compound dislocation of that joint, that was under my care when house-surgeon at St. Bartholomew's Hospital.

The accident is very rare, and little has been said about it, and authorities in general do not allude to it. The treatment and termination of this case convey instruction that is profitable. I can well imagine a surgeon, who possesses no information on the subject, hesitating on the measures he should adopt in a similar instance.

George Mangell, aged 19, admitted on the night of Jan. 20th, 1842, into St. Bartholomew's Hospital.

Mode of accident.—While at work at a threshing-machine of three-horse power, his arm got entangled in one of the wheels during its revolution.

Symptoms.—The shoulder is flattened, the arm a little lengthened, the elbow at some distance from the side, and the limb is fixed.

Amount of injury.—A wound ten inches in length extends nearly around the shoulder, commencing in front, just below the inner tubercle of the humerus, passing obliquely through the axilla, and terminating behind, at the base of the acromion. Anteriorly only the skin is divided. The muscles beneath, although exposed, are uninjured, and the brachial plexus is not denuded. Posteriorly the axilla is laid open, and a portion of muscle hangs out. The skin has retracted considerably, and is, besides, so extensively detached from the subjacent

muscles, that the entire finger can be passed under it, on either side of the wound, without reaching the limits of its separation. The head of the humerus, denuded of its capsule, is felt lying against the inferior costa of the scapula; its neck can also be distinguished, and, in front of it, the brachial artery can be felt pulsating. No bony structure could be seen, as the upper part of the arm could not be drawn away from the trunk sufficiently for that purpose. The partially-detached piece of muscle is a bit of the latissimus dorsi; the situation from which it has been torn cannot be distinguished.

Treatment and reports.—The first steps I took were to remove the piece of muscle, by dividing the few ragged fibres which united it laterally, and then to sever the tendinous insertion from the humerus. The portion was about an inch and a half square.

I now proceeded to the reduction of the dislocation. This was done by two assistants fixing the body and the scapula by a jack-towel, while two others exerted extension by laying hold of the forearm. I then placed my left hand under the upper part of the arm as a fulcrum, and at the same time grasping the elbow with the right hand, and using it as a lever, replaced the bone in about three minutes. The edges of the wound were brought together by sutures, and the arm confined to the side of the body by a bandage. The forearm was supported by a sling.

The wound united kindly, partly by adhesion, partly by granulation. No constitutional disturbance followed the injury. Several days after the accident suppuration took place on the outer part of the chest, below the axilla. I evacuated the matter by incision.

Feb. 20.—The arm-sling and bandage are laid aside; he can raise the arm without pain. The shoulder-joint admits of more motion than he is able to perform voluntarily. The deltoid muscle is so shrunken that the outline of the humerus and the acromion is perceptible.

March 11.—The wound is completely cicatrized; the patient has little power of raising the arm. He performs the under motions freely. Discharged. (See Report on Surgery in the present Volume.)

ART. 63.—*Case of a large Tumour involving the Superior Maxillary Bone, removed by* Prof. PANCOAST *at the Clinic of the Jefferson Medical College.* Reported by JAMES V. PATTERSON, M.D.

(*Philadelphia Medical Examiner*, August 1848.)

Rachel Flora, æt. 18, a strong, healthy-coloured girl, residing in Bucks Co., had suffered from the presence of an epulis tumour of the upper jaw for the last ten years.

When she was two or three years old, and then living in Virginia, she had a tumour of the same description removed from her upper jaw by a physician of that State; but after an interval of three or four years it returned again, and has been gradually increasing, until it has attained its present size. The tumour, as it now appears, extends from the anterior part of the superior maxillary bones, across the mouth, as far back as the epiglottis, being attached in front to the alveoli of the incisor teeth, and behind to the palatine processes of the superior maxillary, filling up the cavity of the mouth, and materially interfering with respiration and deglutition, so that for the last few months the patient has been nourished entirely by liquids. In its

character, the tumour evidently belonged to that class of tumours known under the name of erectile, vascular in its nature, swelling up and pulsating forcibly under the least excitement of the circulation, so as to threaten the patient with suffocation. Only a few days after her arrival in this city, she had an attack of hysteria, during the paroxysm of which, the tumour swelled up to such an extent, as to endanger her life by suffocation, and to demand the free use of the lancet.

As the removal of such a vascular mass would necessarily give rise to a great amount of hemorrhage, it was deemed expedient and requisite to tie the primitive carotid artery of that side; for the ligation of the external carotid alone would not suffice, as there existed such a free anastomosis between the vessels of the external and internal carotids, secondary hemorrhage would be likely to take place, which might prove fatal. Accordingly, on the 6th of November, Professor Pancoast, in the presence of the class, performed the operation for ligation of the primitive carotid on the left side, after the usual manner, and succeeded in throwing a ligature round the artery, though the struggles of the patient and the great fear lest she should have a hysterical convulsion during the operation, made this a rather difficult undertaking. Everything went on favorably, and in the course of two weeks she was prepared to have the whole tumour removed.

On the 20th of November, the patient having been brought into the amphitheatre, Prof. Pancoast removed the whole of the diseased mass after the following manner:

The face being placed opposite a strong light, and the head of the patient supported against the breast of an assistant, an incision was made through the cheek, from the left angle of the mouth, in a semicircular direction, towards the outer canthus of the eye, after the manner of Velpeau's operation, so as to avoid wounding the parotid duct and the portio dura nerve.

The flap was then rapidly dissected back from the bone, and with a small saw the superior maxillary was divided transversely by an incision parallel to the alveolar processes, then with a strong pair of cutting forceps a vertical incision was made through the bone at each end of the transverse, one by the side of the last incisor tooth on the right side, and the other by the last molar tooth of the left, and the mass, thus isolated from its bony attachments, was quickly removed. The hemorrhage following was restrained by the use of the actual cautery; and the wound having been plugged with lint, the lips of the incision were united by hare-lip suture and adhesive strips, and the patient placed in bed, and ordered to live on a liquid diet.

The wound in the cheek healed up by first intention in five days, and, on the tenth day after the operation, the condition of her mouth was such that she was enabled to eat meat, a thing which she had not done before for several months. The wound of the jaw rapidly filled up with healthy granulations, and in three weeks after the operation she was discharged cured. The ligature of the carotid came away on the 30th of December, and in the first week of January she returned to her friends in Bucks county, highly pleased with the results of the operation.

ART. 64.—*Ligature of the Left Subclavian Artery for Subclavian Aneurism; with a remarkable Deviation of the Vessel and consequent Change of its Relations.* By J. MASON WARREN, M.D.

(*American Journal of Med. Sciences.*)

The great mortality attending the ligature of the larger arterial trunks, and of the subclavian in particular, gives interest and importance to any case of operation on those vessels. In the latter this interest is increased by its deep situation, causing in many cases a great difficulty of reaching it, and by the importance of the organs in its immediate neighbourhood. According to the valuable tables furnished by Dr. Norris, out of 69 cases of ligature of the subclavian artery, 36 recovered, and 33 died, or nearly one half. In operations on the iliac arteries, out of 118 cases, 85 recovered, and 33 died. From 38 cases of operation on the carotid artery for aneurism, 22 recovered, and 16 died. In every instance where it has been necessary to place a ligature on the subclavian artery on the tracheal side of the scaleni muscles, the result has been fatal.

The case which I propose at present to relate, offers some peculiar points of interest, apart from the general one of the ligature of the vessel. Among the principal of these may be mentioned the fact of a ligature having been applied to the artery for an aneurismal tumour situated above the clavicle, being, so far as I am aware, the first case of this kind that has had a successful result, because the recorded aneurismal tumours in that situation have required the application of a ligature within the scaleni, and the termination, as stated above, has been unfavorable. *Secondly*, the anatomical peculiarities in the relations of the vessel, to which may be attributed the possibility of the ligature on the outside of the scaleni. *Thirdly*, the rapidity with which the collateral circulation was restored, the pulse having been felt at the wrist twenty-four hours after the operation. *Finally*, the length of time the ligature remained attached, *ninety-six days*, notwithstanding all safe means were made use of to detach it.

Without further prelude I shall proceed to the description of the case.

Miss A., æt. 30, of delicate constitution, had a congenital club-foot of the worst kind, and, in consequence, a double curvature of the spine. For the former of these she was treated eight or ten years since by Dr. Brown, at his infirmary, and the foot, after the section of the tendons, followed by the appropriate treatment, was completely brought into its natural position, so that she was enabled to walk with ease, without the aid of any mechanical support. The curvature of the spine was submitted to a similar treatment, with the same successful result.

At the request of Dr. Brown, she consulted me in the early part of December, 1847, for an aneurismal tumour situated just above the scapular end of the clavicle, about the size of a pigeon's egg, of which she gave the following history:

Four months previous, while in attendance on a sick brother, she had occasion to draw the cork from a bottle, and felt at the moment a sudden crack at the point where the present tumour is situated. Her attention was not attracted to it at the moment, but a short time afterwards

a small swelling, having a decided pulsation, was distinguished at that spot, which has gone on increasing until it has attained its present size. It had a powerful pulsation, and possessed the usual thrill characteristic of an aneurismal affection.

After having examined the tumour and learned its history, I endeavoured to discover the subclavian artery in its normal situation beneath the clavicle, at the point where it passes over the first rib. To my surprise, no large vessel or any osseous protuberance answering to the tubercle of the first rib, usually taken as the guide to the artery in this position, could be found. Different parts of the neck were then explored, which finally led to the discovery of a large artery passing obliquely upwards, parallel to, and about an inch removed from, the external border of the trapezius muscle. Compression being made at this point, the pulsations of the tumour ceased, as well as the pulse at the wrist. There was no question, therefore, in my mind, that this was the subclavian artery, but it was more difficult to determine the cause of this remarkable anomaly.

I now sought for the first rib, and to my surprise discovered both the first and a part of the second rib passing obliquely across the neck above the clavicle. The insertion of the scalenus anticus muscle into the first rib was at length distinguished; the tubercle, however, was not sufficiently developed to be manifest to the touch. The whole osseous system of the chest in this case seemed to have undergone a partial displacement. The spine and ribs attached had been, as it were, moved upwards; while the sternum was carried in an opposite direction.

Making a strong compression on the vessel above the tumour, the arm became extremely painful, with a sensation of numbness, and on a subsequent and more careful examination, the whole brachial plexus of nerves could be discriminated in immediate contact with the artery.

As the tumour was rapidly increasing, it was evident that, considering its situation and the great danger of delay, no time was to be lost, if any surgical operation was to be resorted to for its relief.

The patient, a person of much fortitude and force of character, agreed at once to the course advised. The operation was performed, on December 24th, in the presence of Dr. J. C. Warren, Dr. Brown, Dr. Buckminster Brown, Dr. Bartlett, of Roxbury, Dr. Morland, and Dr. Slade.

An incision, about two inches long, was made, extending from near the outer and upper edge of the sterno-mastoid muscle downwards, in the direction of the scapulo-clavicular articulation, and an inch from the edge of the trapezius muscle, the pulsations of the vessel being the principal guide, as the other anatomical marks were wanting. This incision divided the skin and superficial fascia; a second cut opened one of the branches of an artery given off from the thyroid axis, which was tied. A nervous band of some size was now encountered, and at its side and directly over the artery a large vein, apparently the external jugular. The vein was carried to the upper part of the wound with a silver hook, and the nerve to the lower; the dragging upon the latter caused a disagreeable and somewhat painful sensation in the arm.

The sheath of the vessel was next opened, the cellular membrane around it cleared away, and the aneurism needle, unarmed, passed

from below upwards, on account of the difficulty of introducing it in the contrary direction from the interference of the scalenus anticus, which had its insertion just below. The needle at once encountered and raised the lower nerve of the brachial plexus, which was in the most intimate contact with the artery. By depressing the handle and urging the point forwards, with careful manipulation the eye of the needle was without difficulty brought out between these two organs. The instrument was now threaded with the ligature and withdrawn. Careful exploration was made to ascertain if any nerve was included in the ligature, the painful sensations in the arm caused by drawing the ligature downwards at first leading to the supposition that this might be the case. But when the same traction was made directly upwards, no pain was felt; the former sensations being produced by the dragging on the cervical portion of the brachial plexus, owing to their connexion with the vessel.

The ligature was now tied, and the wound dressed. The pulsations in the aneurismal sac, as well as those of the radial artery at the wrist, at once ceased, and all appearance of tumour vanished. The patient's arm and hand were a little cold directly after the operation, but being rolled in flannel they soon regained their natural temperature.

On the 29th the pulse was perceived, though feebly, at the wrist, but could not be detected in the axilla. The spot formerly occupied by the aneurismal tumour now presents an obvious depression.

14th. The ligature still remains on the artery, notwithstanding the traction daily made by the patient in accordance with my directions. A number of large vessels, taking their origin from the subclavian, exist in different parts of the neck. One of these, apparently the supra-scapular, passes directly over the sac, and pulsates so strongly as at first to convey the impression of a return of pulsation in the aneurismal tumour.

March 30th. Once or twice in the course of the last two or three weeks, finding that the ligature on the vessel was not disposed to become detached, I have seized it with the forceps, and, holding the artery forcibly down on the rib, have twisted the thread with considerable force. This was done for the third time yesterday, and immediately afterwards the ligature separated, *ninety-six* days after the operation. The wound almost at once closed.

I saw this patient on September 14th for the last time. At that period she was quite well, had recovered the use of her arm, and was in no way incommoded by the operation to which she had submitted. The aneurismal tumour had in a great measure disappeared; but it still conveys the impression of containing a fluid. Directly on its surface, and incorporated with it, is a very large arterial trunk, supposed, as above stated, to be the supra-scapular. This vessel pulsates powerfully, and at first gives an appearance of pulsation to the tumour; but by careful manipulation can be separated from it. The pulse at the wrist still remained a little less strong than in the corresponding artery of the other side.

[The author in the following postscript gives the further report of a remarkable case, which will be found in 'Abstract,' Vol. IV, p. 110.]

To those persons who may have noticed a case of ligature of both

carotids, in the April number of this Journal for 1846, an account of the state of this patient, after the lapse of three years, may not be without interest.

The object of this operation, it may be remembered, was to allow of the excision of a fungous tumour occupying nearly the whole of the lower lip, and based on an erectile tissue pervading the tongue, face, neck, and chest. This tissue was rapidly increasing, and it was hoped that its growth might be arrested by thus cutting off the direct supply of blood to it. The arteries were tied in the latter part of the year 1845, and the tumour of the lip was then excised, without the occurrence of any alarming hemorrhage.

This patient I have had an opportunity of seeing within a few months, and of making some observations on the state of the circulation in those parts about the face and neck supplied by the carotids.

The situation of the temporal arteries being explored, no appearance of pulsation could be discovered in those vessels. The same was found to be the case in regard to the labial arteries. The angular arteries, where they inosculate with the nasal branch of the ophthalmic, gave the faintest pulsatory motion. In the region of the neck where a number of large vessels having their origin from the subclavian, among which the supra-scapular was chiefly to he distinguished. The lip was rather more full in appearance than when the report of the case was made, but free from ulceration. The functions of the brain had not in any way been disturbed.

ART. 65.—*Operation for Artificial Anus.* By J. MASON WARREN, M.D., one of the Surgeons of the Massachusetts General Hospital.

(Pamphlet from *American Journal of Medical Sciences.*)

Artificial anus is an affection generally caused by the sloughing of the intestine in strangulated hernia, although occasionally the result of abscess and penetrating wounds. Sometimes a small portion only of the calibre of the intestine is destroyed, the bowel becomes attached to the parietes of the abdomen, and a fistulous opening is the result, usually amenable to the ordinary method of treatment. At other times a whole loop of the bowel sloughs off, and both ends of the intestine unite to the abdominal walls, leaving an opening from which the fæces are constantly discharged, and only to be remedied by surgical means.

Cases of the latter character are of unusual occurrence, and the means for their strictly scientific treatment by surgical operation have not, until within a few years, been fully established. The one I intend to relate is, I believe, the only instance successfully operated upon after the method of Dupuytren, in this part of the country, so far, at least, as my medical experience extends.

The patient with artificial anus, of whose case I propose to give an account, was sent to me by Dr. Brown, of Nova Scotia, in June, 1847. She was thirty-four years old, the mother of six children, and previous to the occurrence of the present accident, of good constitution. A small crural hernia had existed on the right side for an indefinite period of time.

Dr. Brown was called to her fourteen months previously, and found her labouring under a strangulated hernia of forty-eight hours' duration. An operation was immediately performed, but on opening the

sac, the intestine was exposed in a gangrenous state. The stricture was therefore divided, and the intestine left in the wound. At the end of a week, the sphacelated portion separated, and the fæces flowed freely through the opening. After some time she partially regained her health, was able to sit up, and finally to work moderately, until the following September, when abscesses began to form in different parts of the thigh. From this period she gradually lost her flesh, and declined in strength. Two of the abscesses were opened by the lancet; the others, on the under surface of the limb, opened and discharged spontaneously. Pus at first issued, followed by fæcal matter, and great suffering attended the effusion of the latter into the soft parts. Until within a few weeks previous to her coming under my care, there were occasional fæcal discharges per anum, but the greater proportion of matter was evacuated through the various fistulous openings.

The patient arrived in town in the early part of June, 1847. Her condition at that time was as follows:

She was extremely weak and emaciated; the countenance pale, nearly exsanguineous, indicating the almost total failure of the assimilating process. From long confinement she had become nervous and timorous, hardly allowing the slightest examination.

The position of the patient was almost entirely on her back. The fæces, in a very liquid state, were constantly running out through two openings in the groin, and three in the posterior part of the thigh. The right limb was drawn up almost to a right angle with the body, and the whole thigh much enlarged and hardened. The skin around the openings in the groin had a red irritated look, was thickened almost to callosity, and excoriated. The openings were quite small, so as hardly to admit an instrument larger than a common director.

A nourishing diet was allowed and great cleanliness of the wounds enjoined, with the more especial object of preventing the painful excoriations.

The situation of the intestine could not at first be determined, which added to the embarrassment of the case. In those of a similar nature, which I had an opportunity of seeing abroad under the care of Dupuytren, the intestine opened on the surface of the abdomen by a large aperture, and there was no difficulty in exploring at once the end of the bowel with the finger, or by instruments. In the present instance the fistulous openings ran in every direction; those in the groin were immediately in the neighbourhood of the probable orifice of the artificial anus, allowing a probe to penetrate for its entire length.

I therefore determined to dilate the two latter openings, which was done very gradually by sponge-tents, on account of the sensitiveness of the patient to any manipulations; and it required the persevering application of this method for a month, before the two ends of the intestine could be with certainty distinguished. This, however, was finally accomplished, and a gum-elastic bougie passed into the upper and another into the lower orifices of the intestine. The bougie first penetrated through a thick callous mass of integument, then through the muscular or tendinous covering of the abdomen, in all about an inch in depth, when the septum or spur, as it has been called, which separates the two ends, was encountered and with difficulty entered, being so closely applied to the parietes of the abdomen as to

prevent the least passage of matter from the upper into the lower part of the bowel. There had not been, in fact, for two months, the slightest fæcal discharge per anum. The intestinal ends seemed to lie parallel to each other, so that the bougies introduced for exploring made but a very slight angle. The patient still remained nervous and quite feeble.

I directed that the sponge-tents should be continued; also that a pint of oatmeal gruel should be given, per anum, daily, for the purpose both of stimulating the intestinal coats to the performance of their natural functions, and with the object of enlarging the calibre of the bowel, which must have become much contracted from long disuse.

On the following day I found that some scybalæ had come away with the enema; and, on the next day, the injected fluid made its appearance at the apertures in the groin.

In the course of a few days the principal opening had become so dilated, that by a steady and patiently applied force, I could insinuate the little finger quite down to the intestine. The septum could now be distinctly felt lying against the wall of the abdomen, and be hooked up, so as to permit the end of the finger to be carried into the lower portion. The sensation of the valve was that of a delicate membrane, like the coronary valves of the aorta, though somewhat more resisting. A director was now carried down at the side of the finger for the purpose of keeping the valve open, a gum-elastic catheter passed in, and a quantity of warm water injected, to make sure that the lower orifice had been found. This water afterwards appeared, and was discharged per vias naturales.

The patient being well prepared, I determined to apply the enterotome, which was done July 12th. Having made sure of the lower opening by a director, as on the day previous, the male branch of Dupuytren's enterotome was carried into the lower intestine; the director was then withdrawn, and the female branch introduced with ease into the upper. The two parts of the instrument now occupied nearly the whole calibre of the dilated passage leading to the gut. It was necessary particularly to separate and lock them. This I found at once to be impossible, for the jaws of the female portion would not allow of sufficient motion at the hinge to lock with the other part of the instrument. If the intestine had opened directly on the abdominal surface, there would have been no difficulty, but the locking of the forceps under the existing circumstances was impracticable.

I therefore withdrew the instrument, and had recourse to another, which has since proved much better than the enterotome of Dupuytren. This instrument was about six inches in length; the handle was constructed with a screw-vice, and the joint with a moveable pivot, as in that of Dupuytren; the blades, however, were different. In the place of one blade being received into a groove in the other, they were serrated, like the polypus forceps, for the space of three inches. The whole instrument was four inches and a half long, or about two inches shorter than that of Dupuytren. The blades being introduced in the manner already described, were locked without difficulty, and at once brought together as tightly as the screw would permit.

On the next day I found her quite free from pain. She had complained a little for a few hours after the instrument had been put in place, but there was a question whether this might not have arisen from fear.

The fæcal matters passed by the side of the instrument, and warm water was daily injected into the wound, to prevent any obstruction. She had also an enema daily, which kept the lower bowel in action.

On July 15th, three days after its application, the instrument came away. In the jaws of the forceps, and bearing the impress of the teeth, was a blackish slough, two inches and a half long, four lines wide, and about three thick. The finger, passed into the orifice, could distinguish an opening between the two ends of the intestine, corresponding in size to the slough, the edges of which were greatly thickened and fleshy, imparting a sensation entirely unlike the delicate valvular one of a few days previous.

This examination was conducted with the greatest delicacy, from fear of destroying the adhesions, which must have been, of course, at this early period, of the slightest kind.

In the afternoon she had a small fæcal discharge through the wound. She complained of no pain, and there was no tenderness of the abdomen.

On the following day, the 16th, she was quite comfortable, had had a free dejection per anum from an enema, more slimy in its character than usual. There had been no discharge from the wound since the day before. A gentle compression was made by means of a compress and bandage on the openings in the groin, and the orifices ordered to be touched daily with the nitrate of silver.

The patient improved in health, rapidly acquired her strength, and there was no farther discharge at the artificial anus from the day of the separation of the instrument until she left the hospital, at which time the openings in the groin had almost completely cicatrized.

On July 29th, being very eager to return home, she was discharged from the institution at her own request, but against my wishes, as I was anxious to watch the progress of the case to its very close.

From a desire to learn the final result of this case, I have lately addressed a letter to Dr. Brown, of Horton, N. S., her physician, and received a reply bearing date May 5th, 1848. In his answer this gentleman informed me, that immediately upon her return my patient was greatly improved both in health and spirits, the fæces had their natural exit, and everything looked very promising. In a short time, however, owing to over-indulgence in the use of coarse, flatulent food, and the want of that general surveillance so necessary for this class of patients, fæcal matters had again appeared at the old orifice, as well as at several places on the hip, some of which were fresh outlets. This was the condition of things in December, when Dr. Brown was summoned to a meeting of the legislature at Halifax.

"On my return in April," writes this gentleman, "about a week ago, I was quite taken by surprise to find our patient perfectly recovered, looking as plump and gay as ever, and busily employed about her house. Being in haste, and she being busy, I did not examine her, but she informed me that all the ulcers as well as the original outlet were entirely healed, except one new one, and that had not discharged fæcal matters for some time, and was, in fact, nearly healed; that the hip had greatly decreased in size, and had assumed quite a natural appearance; that her bowels were entirely regular, and she could take any kind of food without the least inconvenience. She

even said, she had not enjoyed so good general health for several years previous to her misfortune as now."

On reviewing the above case, it will be perceived that it presented difficulties of a formidable character. In the first place, the extreme debility and emaciation of the patient, and her great mental depression, were obstacles almost as troublesome to contend with as the disease itself. Twice, after much labour had been expended, and some progress made in the preliminary treatment, she insisted on relinquishing it at once and returning home; and on the day when the instrument was to be applied, she declared that she was certain she must die the following night, and that it was quite useless to attempt the operation. These depressed turns generally passed off after a time, and then the patient was very urgent to have the treatment continued, but for the moment they were sufficiently discouraging to the surgeon.

The numerous fistulous openings, with the effusion of fæcal matter into the groin and back part of the thigh, occasioned considerable embarrassment in pursuing the treatment for discovering the end of the intestine. Added to this, and caused by it, the thighs were flexed nearly to a right angle with the body, and were constantly in the way of the instruments used for exploring the artificial openings.

The instrument used I conceive to possess great advantages over that of Dupuytren. In fact it consisted of, or may be almost exactly represented by, a common pair of old-fashioned polypus forceps, with the branches detached and united by a moveable pivot, instead of a fixed joint, the handles perforated with a screw-vice, and the jaws serrated throughout. It is less clumsy than that of Dupuytren, causes more complete strangulation, and does its work in less than half the time.* By an examination of the cases of this distinguished French surgeon, it will be found that the enterotome generally separated about the seventh or eighth day: in the present instance it came away on the third, yet no effusion or other evil consequence resulted, although the patient was as little provided with the materials for forming plastic lymph as can well be imagined. She was, in fact, almost exsanguineous.

In the relation of this case we have only mentioned the course of treatment ordinarily pursued by Dupuytren, without alluding to the methods of Physick, Gross, and others in this country or in Europe, who have done so much to advance this branch of surgery.

A case of a similar kind to that narrated occurred to me in an infant some years since, and as it illustrates one of the accidents liable to take place at any moment in patients labouring under this unfortunate affection, namely, a prolapse of the end of the bowel, the details may be here given.

I was requested by the medical attendant of the family to see an infant eight months old, and received the following history from him. He was first called to it when three weeks old: the parents stated to him, that for a few days subsequent to its birth it was in much distress, and had no alvine evacuation until the cord separated, when an exudation took place at the navel, followed by much relief. Shortly after a small red tumour appeared at this spot, from the central portion of which the fæcal evacuations occurred; there was no discharge

* I am not aware of the name of the inventor of this instrument, or whether it was constructed for the purpose for which it was employed in the former case.

per anum. He directed them to make use of a compress and bandage over the tumour, and under this treatment the child began to have evacuations by the anus, to gain strength and flesh. I advised that this treatment should be persevered in.

About two months subsequently, after a sudden exertion, a couple of tumours protruded from the navel, attended with some constitutional symptoms, and an entire stoppage of the evacuations. I saw the patient two days afterwards, and at once recognised a prolapsus of both ends of the intestine. The tumours lay across the abdomen, one to the right side, the other to the left; one portion, which proved to be the lower, was dark coloured, and more contracted than the other. The second, or upper part of the bowel, was large, covered with mucus, and the vermicular motion could be distinctly seen in it. An effort had already been made to reduce them into the abdomen, but without effect; and a proposition had been made by some physician who had seen the case to apply a ligature to the root. This was done in doubt as to the exact nature of the affection; and, in fact, the parts were so changed, that they were with difficulty distinguished as belonging to the intestinal canal.

The child being cold, its pulse small, and having every appearance of rapidly sinking, I declined for the moment any operation, but advised stimulants, and agreed, if it revived, to attempt an operation on the following day, for the purpose of returning the bowel.

On the next morning, the child having revived under the treatment suggested, the following operation was practised. A small neck or tunnel existed at the navel where the intestine protruded, being, in fact, the common everted orifice for the two openings of the bowel. An incision was made at this spot, being within the peritoneum, though protruded from the abdominal cavity. The two ends of the intestine as they issued were now seized with a blunt hook, and slight traction made on them. The inverted portion gradually began to recede, and by continuing this manœuvre, at the same time using some external pressure on the tumour, it gradually returned into the interior of the abdomen. The neck of the tumour where the incision was made, and which represented the tunnel-shaped portion, was retained outside, so as to prevent the effusion of fæcal matters through it into the peritoneum. Immediately on the return of the bowel, free evacuations took place from the anus, with great apparent relief. The patient, however, did not rally, but sunk, and died on the next day.

An examination after death presented no peritoneal inflammation or effusion, and no attempt seemed to have been made by nature to close the incision of the operation, showing the low state of the vital powers at the time it was done. The upper portion, which had been returned, looked comparatively healthy: the lower was quite dark coloured, and showed the effects of the partial strangulation; an invagination of its coats for about an inch also was discerned.

ART. 66.—*Case of Abscess of the Spermatic Cord, complicated with Hernia and Peritoneal Inflammation.* By W. P. BROOKES, M.D., &c.
(*Medical Gazette*, Feb. 3, 1849.)

R. W., aged 51, of an active, spare habit of body, irritable and very anxious disposition, living as butler in the family of a gentleman in

Cheltenham, enjoyed uninterrupted good health to within the last few months. Six months back, he, after much pain and suffering, passed a large-sized gravel stone : since that time his usual good health returned.

On Wednesday, June 28th, 1848, I was requested by his master, who had formerly practised as a medical man, but had retired for the last few years from the active duties of the profession, to attend him. I found the patient suffering from feverishness, constipation, pain in the abdominal region on pressure, and extensive pain around the margin of the ribs on the right side. On examination of the groin I learnt he had suffered for several years from a double inguinal hernia, and for it had constantly worn a truss. There was on the right side, above Poupart's ligament, a round cup-shaped depression, as large and deep as a small saucer, caused by the pad of the truss slipping out of its proper position, and extensive pressure having been kept up with the pad, which was hard and convex. On this spot he complained of excruciating pain, and could barely allow it to be touched: the heat of it was far above the natural temperature, and the skin was of a reddish-brown hue.

The pulse was very quick and sharp ; bowels had not acted for two days ; tongue foul ; hernia easily reduced ; ordered him five grains of calomel, to be taken directly ; black draught in the morning, and a dozen leeches, with fomentations and poultices to be applied to the abdomen ; afterwards an enema to be given at bedtime, if he had had no evacuation before that period.

29th. Bowels not opened ; enema passed away without any fæcal matter ; great pain over the whole abdomen, and around the edges of the liver ; tongue white and foul ; pulse quick and wiry ; urine scanty and high coloured. Take two grains of calomel and half a grain of opium every four hours ; an enema to be given directly ; twelve leeches to be again applied to the bowels, and afterwards warm poultices kept constantly on.

30th. Pain in the abdominal region increased since last night ; bowels opened twice ; countenance anxious ; pulse sharp, wiry, quick, and small ; tongue foul. Repeat the calomel and opium ; to be bled until the system feels the effect of it, and the pain becomes less.

July 1st. Pain in the abdomen and around the liver much decreased after the bleeding ; tongue dry and red in the morning, but at night it became quite moist. Repeat calomel and opium.

2d. Pain entirely ceased over the bowels and liver, but at the spot where the truss was worn it is still very acute and painful : intense hiccough appeared this morning, which gives him uneasiness ; countenance shows great anxiety ; he takes but little sustenance ; more fulness on the spot where he complained of pain, and a swelling of a pyriform shape, extending under Poupart's ligament from this part down into the scrotum, appeared to-day ; it follows the course of the spermatic vessels from the ring ; the cord is situated behind the swelling, and feels hard, tense, and most painful to the touch ; the hernia is not to be discovered ; the tongue dry, glazed, and red, but at night it moistens, and has done so for the last few evenings. Pulse 120, quick and sharp.

3d. Hiccough continues much the same, and he rarely gets an interval of five minutes without it ; he has also every two or three hours severe fainting paroxysms, in which he can scarcely draw breath, and is com-

pelled to be supported up in bed; when in these attacks he appears as if in a dying state, and they last for two or three minutes at a time; the stethoscope can discover no abnormal signs of disease in any of the viscera or vessels of the chest; the tumour in the groin is hard, red, and painful to the touch; does not fluctuate, nor does pressure exert any influence on it; no intestine can be discovered down; twelve leeches to be applied to it; warm fomentations afterwards. To take beef-tea, brandy and water, and the following mixture: two drachms of spirits of compound sulphuric ether, water, six ounces; one table-spoonful every two hours.

4th. Tongue cleaner, but red and shining; pulse small and wiry, 110. Hiccough continues much the same; paroxysms of difficulty of breathing and fainting less frequent; pain and fulness in the region of the groin increase, but it is softer and more boggy than it was yesterday. Spirit lotion to be kept applied to the parts, and take one grain of quinine, with compound spirits of sulphuric ether, every four hours. Bowels are regular, and urine plentiful.

5th. Diarrhœa set in to-day; tongue dry and shining in the morning part, but moist at night. Hiccough continues the same; paroxysms of difficulty of breathing less frequent. Ten grains of Dover's powder at bedtime, and chalk mixture, with aromatic confection, every four hours, until the purging ceases.

7th. Diarrhœa ceased last night. Swelling in the groin and scrotum increases; most painful when touched. Spermatic cord situated behind is increased in size, hard, and painful. Hiccough less, but still troublesome. Countenance less anxious.

Towards the evening of the 8th I was sent for in great haste, when I found my patient in a dreadful state of collapse, with difficulty of drawing breath; cold perspiration streaming from his forehead and face, and we considered him in a dying state; he could just swallow. By the use of ether, brandy, and ammonia, he gradually rallied. Warm poultices to be kept applied to the swelling in the groin.

10th. Tumour very painful: will not allow it to be handled much; it extends nearly to the lowest part of the scrotum, and takes quite the shape of scrotal hernia. I can discover no intestine down. Bowels well opened; great sickness came on to-day, and slight fluctuation appeared in the tumour, which is becoming red and inflamed. On moderate pressure it gives a gurgling noise, as if it contained air. Tongue red and moist. Continue quinine and ether. On a consultation with Mr. Eves and my patient's master, it was deemed prudent not to interfere with the tumour to-day, and warm applications were applied.

16th. Tumour continued increasing in size up to this day: it appears to have no inclination to point on pressure; it gives an increased gurgling-like noise of air, and on filliping it, produces a drum-like sound. We can discover no intestine in the scrotum. To-day we thought it advisable to dissect down layer after layer, as if operating for hernia, and after dividing the first two layers a most fetid offensive matter escaped to the extent of nearly half a pint, raised with bubbles of air. The constitution suffers greatly. To take beef-tea, brandy, and as generous food as he can, with occasionally porter and port wine. Instead of brandy, continue the quinine mixture.

18th. Tongue moist; pulse fuller, and more natural; bowels opened;

urine healthy and plentiful; sleeps well. A slough coming away from the wound in the scrotum, which discharges about six ounces daily, and smells most offensive.

18th, 10 p.m. First stage of sphacelus set in this evening on the side of the scrotum, and around the upper portion of the tumour as high as Poupart's ligament. He cannot now feel the parts when touched. Countenance anxious; pulse weaker than this morning. Says he applied a cold poultice to the parts this afternoon. Apply warmth, with flannels to it, for a few hours, and afterwards barm and charcoal poultices. Tongue moist and red; falls frequently into a cold stage of collapse; take egg and brandy mixture frequently.

19th. Pulse fuller and stronger: rallied much since last night. Healthier discharge from the scrotum, and it is becoming more its natural colour and warmth. Can now feel it when touched. Tongue moist: takes plenty of food and brandy. Pulse stronger, and more substance in it. Bowels open and regular. Continue poultices and quinine mixture.

20th. Takes food well: a large-sized piece of slough was cut away from the scrotum to-day. A copious discharge from the parts: the pyriform swelling in the groin still remains. Continue as before.

21st. Going on well; gains strength daily; discharge much the same, but not so offensive as it was. Air occasionally escapes with it when it is dressed. Pulse good; tongue clean; bowels regular.

August 5th. He continues improving; the discharge nearly ceased; wound in the scrotum very trifling, and he can now walk a little.

Sept. 1st. Now quite well: the hernia comes down on the left side, but not on the right to so great an extent as it did before the attack. Still pain on pressure on the spot where the pad of the truss was worn. He wears a common circular truss with a long, oval, concave, soft pad; this at first gave him some uneasiness if it moved up a little, but he now wears it with comparative ease and comfort.

On reviewing the history of this uncommon, and, in many respects, novel case, which I confess terminated more favorably than I ever could have anticipated, I cannot but attribute the first injury to the considerable inflammatory action which was set up in the region of the abdominal ring, from the hard convex pad of the truss having slipped out of its position, and exerting undue pressure on the sheath of the spermatic cord; this inflammation was also gradually extended to the peritoneum, and caused, at the onset of the attack, the severe peritoneal symptoms I had to contend with. The hiccough through the early part of the case was a very troublesome symptom, and doubtless was first caused when the matter commenced forming, as it altogether ceased on the complete formation of the pus; another obscure point in the treatment was the peculiar gurgling sensation and drum-like sound given out by the tumour when it was examined, and which gave us the idea that it was in some measure, either dependent on intestine, or that the tumour communicated with the cavity of the abdomen, and therefore it rendered us anxious not to use surgical interference until more distinct marks of its character appeared. On opening the swelling, the gurgling noise was fully accounted for by the escape of air with the pus, and I doubt not this air was generated

by decomposition of the cellular tissue surrounding the parts, and communicating with the sac of the abscess. Another symptom (no stethoscopic examination could discern disease of any of the organs of the chest) was the peculiar paroxysms of syncope; it is quite impossible for any one but an eye-witness to imagine the extraordinary nature of the severity of these attacks, and frequently we considered the patient in a dying state from them. I have some difficulty in attributing them to any cause, for I never before saw anything at all approaching the symptoms: I imagine they arose from the extreme irritation and exhaustion the system was undergoing while purulent matter was forming, for on the complete formation of the pus they gave way considerably, and shortly after the exit of it, entirely disappeared. The powers of the constitution in this man were obviously shown, and the benefit to be gained by freely pushing stimulants with care was extremely well marked, for he frequently rallied wonderfully, when all hopes of life had nearly ceased.

The stage of sphacelus which for a few hours appeared, I must attribute to the application of a cold poultice to the part by mistake, and the extreme want of constitutional power in the system rendered cold a dangerous remedy in this state. Upon the application of warmth it speedily gave way, and the scrotum again took on an healthy action. The hernia on the side of the injury descends far less than on the left, and for the first few weeks it could be barely said to come down at all; in fact, its descent now only takes place on violent straining or exertion; this I consider was from the abdominal ring being obliterated in a great degree by the inflammatory action taking place upon and around it. I have found much difficulty (since recovery) in adapting a truss to the right side, from the pain it gave him when he first commenced wearing it, but having now had it constructed with a soft slightly concave pad in the centre, and elongated nearly half an inch more than usual, he manages to wear it without uneasiness. There is at present some pain on pressure over the abdominal ring, and the cup-like depression from the former pad of the truss still exists. The right testicle and spermatic cord are quite healthy and of their natural size.

The similarity of this disease in many respects to hernia is very strong, and may easily have (at the onset) been mistaken by a careless observer for a case of strangulated scrotal hernia.

1st. It gradually descended from the abdomen in the course of the cord, which was also situated behind it.

2dly. It protruded much while the patient was in the erect posture.

3dly. It gave some impulse on coughing.

4thly. The gurgling noise and drum-like sound of the tumour appeared as if it contained flatus.

5thly. The costiveness and sickness which frequently appeared, and had not the intestine readily returned, would, I doubt not, have led to the belief that the whole of the symptoms arose from hernia.

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

SECT. I.—MIDWIFERY AND DISEASES OF WOMEN.

ART. 67.—*Excerpta from Observations on the Nature and Treatment of the various Forms of Ovaritis.* By EDWARD J. TILT, M.D.

(*Lancet*, March and April 1849.)

I. *Mode of exploring the condition of the ovaries—per vaginam.*—To examine effectually per vaginam the author recommends that the medical attendant should be placed on that side of the patient where ovarian tumefaction is rendered probable by pain or other signs, and he should use the index-finger of the hand corresponding to that side, while he places the other hand on the hypogastric region, so as to press the ovary forcibly down towards the exploring finger. We are thus easily able to detect moderate-sized pelvic tumours, particularly if, as is often the case, they have gravitated towards the recto-vaginal space.

If the tumefaction is less considerable—if there be only that degree of ovarian congestion which partly produces the phenomena of painful menstruation, &c., the ovary may still be situated above the vagina, and then, in order to feel it digitally, the vaginal cul-de-sac, which surrounds the os uteri, must be raised. To effect this purpose, it is necessary to press the perineum with the three bent fingers, and, when possible, to introduce both the middle and index fingers into the vagina, which gives an additional third of an inch to the exploring instrument. We are thus enabled to estimate the amount of pain caused by pressure on the swollen ovaria, as well as the degree of heat of the vagina, and whether its superior curve is elastic, or hard and resistant, as if infiltrated. Professor Simpson and Dr. Gendrin state, that in numerous cases they have felt enlarged ovaries *in situ* by bringing the organ between two fingers introduced into the vagina, while the other hand was pressed down into the brim of the pelvis on the same side.

By a vaginal exploration we are able to discover whether the tumour is intimately connected with the body of the uterus, or only placed in close juxtaposition to it; thus, in puerperal congestion of the broad ligaments, the tumour is often so moulded as to cap the uterus. In such cases it is interesting to ascertain whether these bodies adhere intimately, for if the movements communicated to the tumour through the abdominal parietes are felt by the finger placed in the vagina, we may suppose that the tumour and the uterus are intimately connected; we also obtain a correct notion of the diameter of the tumour, one of the extremities of which is at the hypogastrium, and the other in connexion with the vagina. The fluctuation of an abscess of the ovaries, or of their surrounding cellular tissue, may sometimes be distinctly

felt by a manual examination, particularly after parturition ; but even then it is necessary to support the tumour by placing the finger in the vagina, otherwise the semi-mobility of the whole tumour might easily be mistaken for the mobility of its contents. When thus exploring, it is sometimes possible to detect a correspondence of fluctuation between the hand on the hypogastric region and the finger in the vagina. When the tumour is situated sufficiently low down, fluctuation may be detected by examining the patient per vaginam ; two fingers (the index and the middle finger) being introduced into the vagina, and placed so as to circumscribe a segment of the tumour. One finger must then be firmly applied to the tumour to receive the shock transmitted by the fluid, while percussion is made with the other finger on the opposite side of the tumour. In the meantime an assistant, by firmly pressing in the hypogastric region, forces the fluid to accumulate as low as possible in the pelvis. The facility of thus discovering fluctuation will be in direct proportion to the thinness of the parietes of the tumour, and its prominence in the vagina. If this mode of investigation fails to render evident the existence of pus, the presence of which is otherwise indicated by rational symptoms, an exploratory puncture will decide the question, without subjecting the patient to either much pain or imminent danger.

Exploration per rectum.—The author agrees with Stoltz and Hirtz (both distinguished professors of the faculty of Strasburg), with Löwenhardt, Cherau, and Dr. Ashwell, that it is possible to reach the ovaries, in their natural situation, by this mode of exploration, and thus to appreciate their volume and their degree of sensibility. Whatever difference of opinion may exist upon this point, all agree that, on account of the thinness and elasticity of this membranous canal, even slight swellings of the ovaries or the neighbouring tissues may be thus easily detected ; and that when the tumour is considerable, it may be the more readily distinguished from the uterus. The advantages to be derived from rectal examination have been more clearly defined by Dr. Cherau than by any other author.

Another mode of examination much insisted on by Recamier is by means of the thumb introduced into the rectum, the index-finger being at the same time in the vagina. By this method tumours of the recto-vaginal septum may be accurately diagnosed.

II. *Subacute ovaritis—symptoms.*—These are considered under two points of view—1. In the interval between two successive periods. 2. During menstruation.

1. The patient experiences a dull pain in the ovarian region, often imperceptible when she is in a state of repose, but awakened by walking, riding, by any sudden movement, or even by pressure on the side. Radiating from this point, the pains are felt across the loins ; they descend towards the thighs and fundament, and are of a dull, dragging, heavy, and sometimes of an overwhelming nature. They are seldom so acute as to induce the patient to seek for advice. She may submit to them for years, but should she find them so wearisome to mind and body as to be led to seek advice upon her case, she is frequently treated for uterine disease. Should the patient be married, connexion awakens and renders the pains more or less acute. In subacute ova-

ritis, the hands placed on the iliac regions can sometimes detect an increase of heat; and there may be tenesmus, a desire to pass water, or an inability to evacuate the bladder and intestines, independently of any mechanical pressure on these organs. These symptoms of ovarian inflammation may also be overlooked, or attributed to disease of the womb, inflammation of its neck, or to that scapegoat of uterine pathology, only known in England, and called irritable uterus, a disease regarded as neuralgia by some, as a form of dysmenorrhœa by others, and which, having the same symptoms as subacute ovaritis, I suppose sometimes to be one of the legionic names of that disease. The late Dr. Ingleby noticed that the descent of the ovaries in the vagina produced in one of his patients all the symptoms of the disease called irritable uterus. Subacute inflammation is generally overlooked, but if in some obscure cases we are called upon to institute a more attentive examination of the patient; if, for instance, our advice is asked in cases of sterility, and we are obliged to make a most searching investigation into the causes of this lapse of function, then only can we sometimes discover, by a vaginal exploration, an increase of heat in the upper portion of that passage, while the superior curve of the vagina feels hard, and like brawn; but unless the ovaries are considerably swollen, their increase of dimensions will not be detected by this mode of investigation. It may, however, afford an indirect intimation of diseased ovarian action: thus, if one of the ovaries is inflamed, the patient's sufferings are greatly increased by forcibly inclining the neck of the uterus towards it, so as to direct the fundus uteri to the opposite side. The exasperation of the patient's sufferings is then caused by the stretching of the inflamed broad ligament. If both ovaries are inflamed, slight lateral movements, communicated to the uterus by its neck, will greatly increase the pain felt in the ovarian regions. More direct evidence may, however, be obtained by a rectal exploration, for then the finger reaches the ovaries, and finds them more or less painful on pressure, which is not the case when these organs are in their healthy state. They are found to vary from twice to four times their original size. Such are the symptoms of subacute ovaritis, though some authors also mention the increase of pain experienced by the patient when standing on the point of the foot of the side affected. The general symptoms are sometimes absent, but in the more acute cases the local signs of inflammation are accompanied by slight fever at night, thirst, and a furred tongue.

2. The symptoms of subacute ovaritis during menstruation, are merely the exaggeration of those we have already described, and we shall, therefore, not dwell upon them at any length in this place, as in treating of the terminations of subacute ovaritis, we shall have to consider them in the light of special diseases. With the cessation of the catamenia, the violence of the symptoms will abate, but only to return at the next period. Thus, from the nature of the functions of the ovaries, pertinacity is given to a disease in itself inconsiderable, and which in any other organ of the human body would gradually vanish.

The puerperal variety of subacute ovarian inflammation is not generally admitted, but its symptoms have been so well described by

Dr. Doherty, in his short but able paper, that we will use his own words:

"The affection to which I would now beg to direct attention is stealthy in its nature, and usually makes its approaches so gradually, that for a long time the existence of any local malady may be unknown to the patient herself, who thus permits it to remain unheeded week after week, until it has perhaps laid the foundation of organic changes, which it may be ultimately out of our power to remove. To this disease I have heard Dr. Kennedy, to whom I am indebted for my knowledge of it (for I have in vain sought in books its accurate delineation) give the name of secondary inflammation, by which he meant to imply the usually late period of its occurrence, and not that it must necessarily be preceded by a more acute or other morbid process. It is not my intention to deny that the local changes which I am about to detail may result from or be, as it were, the remnant of a more intense degree of inflammation; but the fact I wish to demonstrate is, that the appendages of the uterus are liable to become the seat of an inflammation, but feebly announced by symptoms from the very first, and occurring after the period during which the parturient female is usually considered obnoxious to such attacks.

"The history of these cases is generally as follows:—The patient has probably had an easy labour, and her progress been so favorable, we have ceased our attendance; or, if an hospital patient, she has been dismissed on the usual day, free from complaint. Convalescence proceeds uninterruptedly for some days, or even weeks; but after exposure to cold, she is seized with shivering, succeeded by hot skin and quick pulse, and a dull weight about the pelvis. After a few hours the feverishness disappears, and although some uneasiness still remains about the lower part of the abdomen, it is not sufficient to excite any apprehension in her mind, and thus a considerable space of time may pass over. Febrile paroxysms, however, recur at intervals, and at length becoming more frequent, and stiffness and pain being felt on moving the leg of the affected side, she again applies to us for advice."

By a careful examination, the local disorders already described will be detected; but the ovarian congestion will be more considerable than in the idiopathic variety, and will be accompanied by considerable sero-purulent infiltration of the adjoining cellular tissue, and even of that of the vagina, which gives to the finger the sensation of a dense brawny substance, particularly in its anterior curve.

Treatment of subacute ovaritis — bloodletting.—Venesection is unnecessary, but advantage is generally derived from local bleeding. Leeches are more efficacious than cupping. In applying them, however, it is to be borne in mind that a small number may increase the congestion of the pelvic organs—a plan of treatment, in fact, which is daily employed for the purpose of determining menstruation. We must, therefore, order a number sufficient to make a decided impression on the local inflammation (from ten to twelve). They are to be applied over the inguinal regions; it is not necessary to apply them to the uterus itself.

Injections.—These are most valuable addenda to the preceding re-

medial measures, if administered with due attention. Their composition should be similar to that prescribed in the case given as an apt illustration of the plan of treatment which we have found to be successful. Sometimes, however, the tincture of belladonna, or of opium, has been substituted for that of hyoscyamus. With respect to this administration of injections, the bowels having been previously opened, and injections of tepid water having been previously made, four or five ounces of the tepid enema should be injected slowly into the rectum, the patient being told to retain it as long as possible, and lying on her back, so that the pelvis may be somewhat higher than the rest of the body. This injection should be repeated three or four times a day; and when we consider that the liquid injected is only separated from the inflamed ovaries by a thin, elastic, and highly-absorbent membrane, it will not be difficult to understand that enemata thus carefully given are productive of the greatest advantage. When the patient is cured, the medicated enemata should be discontinued; but for a time they should be replaced by tepid water injected into the rectum morning and evening. We agree with Cullerier (senior) and with Lisfranc, in ascribing no utility to narcotic vaginal injections; they rather irritate the tissues, than subdue their inflammation. While treating of this subject, we may remark on the powerful effect of cold-water enemata in arresting a tendency to hysterical seizures, and suddenly removing them when they already exist. Is not this sudden cessation of alarming symptoms, immediately after throwing cold water on the ovaria, a proof of these organs being materially implicated in the production of hysteria?

Blisters.—As soon as the leech-bites are healed, blisters of four or five inches in length by three in breadth should be applied over the ovarian regions. The blisters must be carefully camphorated, so as to guard against the distressing symptoms of dysuria. The epidermis must not be removed from the skin, and the irritated surface should be healed as soon as possible. The antimonial ointment, so strongly recommended by Dr. Rigby, might be prescribed, in case the mercurial frictions did not produce the desired effect. Dr. Rigby says: "I know of no application so efficacious as the antimonial ointment well rubbed into the part, and when the eruption comes out, applied by a piece of lint, until a slight degree of sloughing is produced. The only objection is, that the patient is occasionally attacked with nausea, faintness, and other symptoms.

Medicated frictions.—As soon as the surface of the skin is sufficiently healed, we must have recourse to other means of relief. Before mentioning the applications we generally prescribe, we must remind the reader that frictions on the ovarian regions have often been advantageously employed by Boivin and Duparcque, in France; by Granville, and without doubt by others, in England. Madame Boivin says, that in several cases of inflammatory adhesions of the broad ligaments, accompanied by dysmenorrhœa, pains, constipation, and tendency to abortion, she relieved the patients by persisting in mercurial frictions over the ovarian regions; and she adds, that this treatment not only stopped the pains, but re-established the proper catamenial discharge, cured the ovarian irritation, and imparted to the

uterus the power of retaining its fruit until it was in a condition to be brought forth alive. Dr. Granville has also cured the tendency to that species of miscarriage produced by ovarian irritation, by combining the repeated use of castor oil with mercurial frictions. We have derived increased benefit from mercurial frictions, by mixing narcotic extracts, such as extracts of hyoscyamus, belladonna, and opium, together with mercurial ointment, in the proportion of a drachm of the extract to an ounce of the ointment. This we find more effectual in allaying the element pain, which is in itself a perpetuating cause of irritation; and as camphor is acknowledged to have a cooling effect on the system, we combine this drug with the mercurial ointment, both on that account, and because of its antaphrodisiac properties.

I can safely recommend to the profession the use of the compound mercurial ointment; for at the public institutions with which I am connected, it is my practice to prescribe it whenever a patient complains of ovarian pains (pains in the ovarian region, extending to the loins and thighs), depending on deranged menstruation, or previous severe labours. In the milder cases, the pains subside after the ointment has been used for a few days; and in many others, when the pains had followed severe labour, had been considerable, and lasted for two or three years, I have seen them disappear after the use of the ointment has been continued for six weeks or two months. In some cases the use of the ointment has been followed by the cure of a leucorrhœal discharge, from which the patient was also an habitual sufferer. These facts have, in themselves, a practical value, whatever may be the explanation given to them.

It appears that in the Dublin Lying-in Hospital frictions with iodine ointment are made, internally, to the roof of the vagina, in those cases which Dr. Kennedy used to call secondary ovaritis. I think the practice dangerous, for certain reasons, so evident that they preclude the necessity of enumeration; but I have sometimes employed, with benefit, the medicated pessaries recommended by Dr. Simpson. The medicated ball, being allowed to melt, its active components are enabled to exert a permanency of action in the generative organs. The following formulæ can be recommended:—Extract of belladonna, two drachms; camphor, ten grains; yellow wax, a drachm and a half; lard, six drachms.—Strong mercurial ointment, two drachms; extract of belladonna, one drachm; yellow wax, two drachms; lard, an ounce. According to the circumstances of the case, they may also owe their medicinal virtue to iodide of potassium, a drachm; acetate of lead, two drachms. For each pessary.

General treatment.—Is it necessary to say that the general treatment of the patient should be such as will invigorate the constitution, without increasing the local irritability and determination of blood to the pelvic organs? Should the patient be married, sexual indulgence must be prohibited so long as there are any signs of ovarian inflammation, and afterwards only permitted in moderation. We might enumerate many other things to be avoided, but in so doing we should be obliged to repeat the enumeration of the causes of subacute ovaritis, for a perusal of the chapter wherein they are set forth will show

what are the stimuli, moral as well as physical, which must be guarded against, and also the diseases which must be relieved previously to the curing of the subacute ovaritis they have entailed; I here allude to metritis, leucorrhœa, &c. Whether these arise by the propagation of inflammation, by continuity of tissue, or whether they have been caused by the indiscreet interference of the medical attendant, they can speedily be cured by an active antiphlogistic plan of treatment; for the disease is not constitutional, but is communicated to the ovaries, as in other cases of accidental inflammation, so widely differing from those in which it is idiopathic, and springs up of itself in some particular organ, as a proof of the contamination of the whole system, which then perpetually feeds the local disorder.

ART. 68.—*On Congestive Dysmenorrhœa, with an Account of a New Depletory Apparatus for the Uterus.* By JAMES WHITEHEAD, F.R.S.
(*Medical Gazette*, April 13, 1849.)

[After alluding in complimentary terms to a paper on dysmenorrhœa by Dr. Oldham (see Abstract, Vol. V, p. 141), the author proceeds to state that, besides the forms of painful menstruation therein alluded to, there is another which, from its phenomena and pathological conditions, may be termed *congestive dysmenorrhœa*. It is thus described:]

Congestive dysmenorrhœa consists, essentially, in a state of vascular hypertrophy of the uterus and its appendages, and is associated, to greater or less extent, with a similar condition of the portal circulation generally. The whole, or a considerable portion of the uterus, is found to be large and weighty, descending in the vagina to a point below its natural position. The cervix is tumid, occasionally excoriated, or presenting a granulating surface; and although sometimes hard and resistant, is more commonly less firm than natural, erysipelatous, varicose, œdematous, or spongy. Its body, upon tactile investigation, is hypertrophied, and not unfrequently painful under moderate succussion made with the finger. The enlargement is sometimes equally pronounced on all sides, but is as frequently partial, implicating, in the majority of instances probably, the posterior wall, in which case the organ is thrown backwards into the hollow of the sacrum, constituting the position of retroflexion or retroversion; and resting heavily upon the rectum, materially interferes with the function of defecation. Occasionally, however, the anterior wall is the seat of engorgement, the uterus assuming the position of anteflexion or anteversion, and exerting an undue degree of pressure upon the bladder: the capacity of this viscus is consequently diminished in proportion to the extent of the encroachment, and influenced, moreover, by a lively sympathy with the part affected, through the intimate relation which exists in the nervous apparatus of the one and the other, the necessity for its evacuation becomes distressingly urgent. The walls of the vagina are commonly relaxed, the labia externa swollen and sometimes marked with venous distension, which state is seen to prevail also about the upper parts of the thighs. The hemorrhoidal vessels are in like manner implicated, accompanied with effusion of blood, which escapes per anum, generally regarded as the result of piles existing within the lower bowel. The orificium uteri is sufficiently capacious, admitting freely the uterine sound, the presence of which within the organ is

generally unattended with any manifestation of that highly irritable condition under which the dysmenorrhœal membrane is produced.

The discharge of blood during the natural menstrual period is, for the most part, scanty and irregular, always unmixed with shreds of membrane, and rarely clotted: it often abates or entirely ceases on the second or third day, and recommences after a few hours, to be continued for a longer or shorter period. These interruptions are, in some instances, several times repeated in the course of one menstrual crisis. The blood is thick and dark-coloured, in some rare instances thinner and mixed with clots; and a watery leucorrhœa prevails during the free catamenial intervals. In cases complicated with ulceration of the cervix, the leucorrhœal discharge has more consistence, and is of a yellowish hue.

On the approach and during the existence of each menstrual change, the symptoms which more especially attract the patient's attention are aching of the loins and sacrum, of the hips, and across the hypogastric region, which is usually the seat of painful distension, accompanied with a pulsatile movement synchronous with the heart's action. The aching is also felt along the thighs, and is sometimes extended to the feet and ankles. Alarming attacks of hysteric convulsions, or aguish rigors followed by febrile reaction, with physical prostration and aching pain throughout the body, are not uncommonly the immediate precursors of menstruation under the circumstances here indicated; and should it so happen that the periodical discharges do not occur to relieve this state of local plethora, inflammatory congestion of the uterus or of some other viscus will be the almost inevitable consequence. The patient is usually admonished of the impending crisis by the advent of some of these symptoms a length of time before its accession,—generally from one to five or six days.

Congestive dysmenorrhœa occurs in women of all ages; and, so far as my experience extends, it is more commonly met with in the married than in the virgin state. It often exists in the barren, and in those who have experienced repeated abortions.

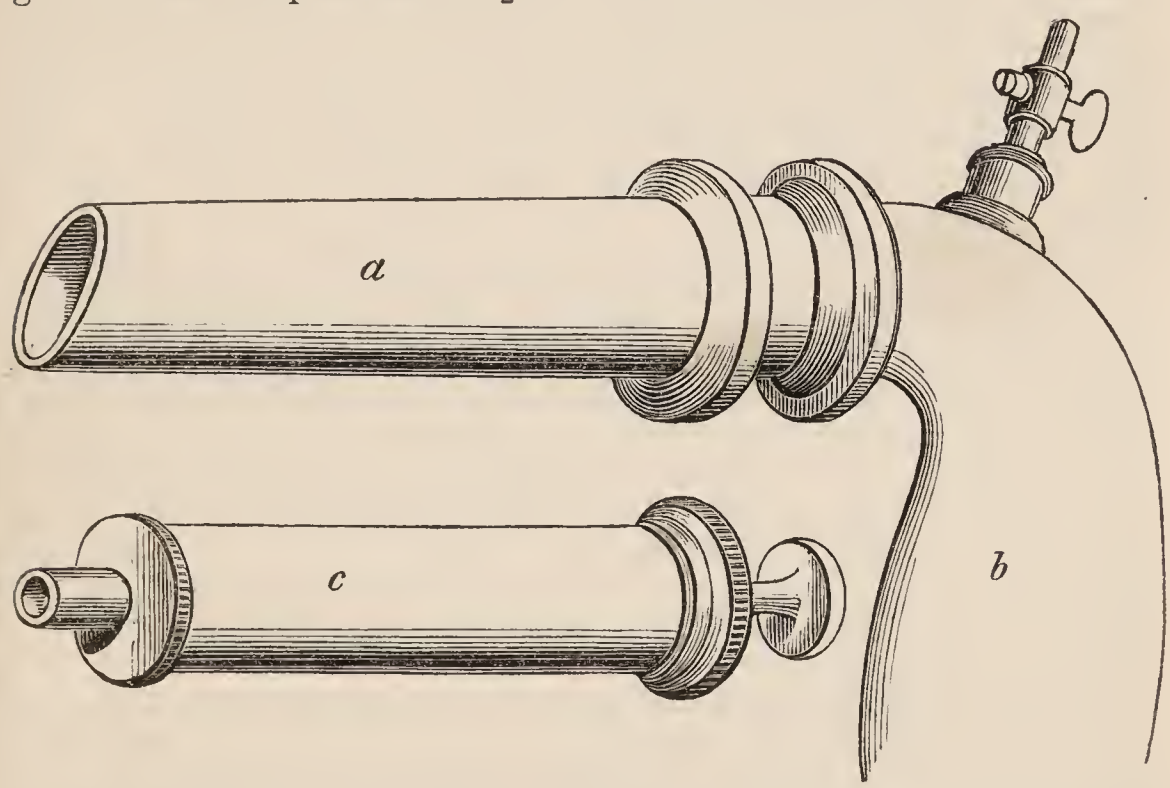
The treatment involves the necessity of both local and constitutional measures. Of the latter kind, depletion, the use of the warm bath when practicable, and of alterative medicines, are, from the state of the vascular system, plainly indicated. If the patient be plethoric, and the symptoms acute, bleeding from the arm, or by leeches applied to the abdomen, to the amount of eight or ten ounces, may first be practised. This should be followed by the exhibition of three grains of pil. hydrarg., or one grain of calomel, combined with a quarter or a third of a grain of antimony, with or without hyoscyamus or opium, as the urgency of the prevailing symptoms may seem to require, given every night, or twice in twenty-four hours, and a draught the following kind twice or thrice a day:

℞ Ferri sulph., gr. ij;
Quin. sulph., gr. ½;
Magnes. sulph., ℥j;
Acid. nitric. fort., gtt. iv;
Tinct. hyoscyami, ♏ xx;
Aq. menth. pip., ℥j.
Misce ft. haust.

These, or remedies of a similar nature, should be used until a decided change in the character of the secretions is manifest. If the symptoms be of a more chronic character, general bleeding may be dispensed with, and local depletion at once put in practice; but the latter will be much more effective if adopted a short time before the appearance of the menstrual discharge, when, in consequence of the natural organic determination, the blood may reasonably be expected to flow more freely.

Two or three days before the catamenial change is expected to come on, from three to eight or ten ounces of blood should be abstracted from the lower part of the uterus, either by leeching or by cupping, in the manner presently to be described, or by both these measures conjointly.

[The method alluded to is by the aid of an apparatus of which we give a faithful representation.]



This apparatus, a species of cupping instrument, represented in the adjoining woodcut, consists of a tube (*a*), similar in shape and dimensions to an ordinary-sized speculum, having a shoulder of glass placed half an inch from its outer or large extremity, from which shoulder outwards the surface of the tube is nicely ground, in order that it may be adapted to the mouth of a gourd-shaped bulb (*b*), also ground on its inner aspect, and within which the tube is received and accurately fitted. The adaptation may be more perfectly secured by previously coating the opposing surfaces with pomatum. The bulb is also provided with a small tube projecting from its neck, to which a stopcock is fitted, intended for the application of an exhausting syringe (*c*), to be used at pleasure.

When it is judged necessary to augment the discharge of blood after the application of leeches, the speculum must be immediately replaced by the tube of the cupping apparatus, care being taken that

the cervix uteri be fairly received within its upper aperture. The bulb, into which a small piece of burning lint saturated with spirit has been thrown, must then be adapted. If the connexion shall have been well secured, a powerful suction is speedily produced, sufficient to continue the bleeding to a considerable amount. It will generally be found necessary, however, after a short time, to renew the exhaustion by the aid of the syringe, which can be done with facility, and in this manner any required quantity of blood may be obtained without loss of time.

The above is the course I formerly pursued; but I now usually dispense with the aid of spirit as an exhausting agent, and employ the syringe alone.

But the cupping apparatus can be made available without the aid of leeches. It may be used with scarification, the cervix being first punctured in several places with a lancet, or the inner cervix being scarified either with this, or, what is still better, by means of Simpson's concealed bistoury, and bleeding promoted in the manner already noticed. This is a more expeditious mode of effecting depletion; but the blood does not generally flow so freely from lancet punctures as it does from leech-bites. It will be amply sufficient, however, in the slighter forms of congestion.

There are cases, moreover, wherein the apparatus in question can be advantageously employed without either leeching or scarification. In debilitated subjects suffering from congestive dysmenorrhœa, it may be used with great benefit, for the purpose of bringing the exhalent function of the uterus into more vigorous and efficient action. For the attainment of this end it must be applied at the commencement or during the existence of menstruation, and repeated daily for two, three, or more days in succession. It generally happens in such cases, if the instrument be well managed, that the discharge, if it has already commenced, is at once augmented, and will continue to flow more or less freely for some hours, accompanied with corresponding relief to the sufferings of the patient.

In any of the modifications of congestive dysmenorrhœa now alluded to, the aid of constitutional treatment will be found necessary for a length of time, and the local appliances will also, in all likelihood, have to be called into requisition during more than one menstrual crisis, ere the function be fully established.

[The paper concludes with illustrative cases.]

Art. 69.—*On the Use of Bichloride of Mercury in Hypertrophy and Induration of the Uterus.* By Dr. Oldham.

(*Guy's Hospital Reports*, October 1848.)

The author's observations, to which we briefly referred in our last Volume, are limited to two diseases: first, an affection of the womb characterised by engorgement, hardening, and frequently displacement backwards; secondly, disease of the cervix, in which it becomes irregular, hard, and nodulated, with a surface of vascular granulations. He states that these diseases have of late years been treated by caustic in this country, and by the actual cautery in France; both which he,

after mature experience, considers as hazardous and inexpedient, and inferior to the treatment it is his object to describe.

Chronic engorgement and induration of the uterus is considered to be either—1, primarily an affection of the womb; 2, it may be induced by ovarian irritation; 3, it may be caused by disorders of the digestive system, in which case it is associated with copious elimination of lithic acid, and often by hemorrhoidal swellings.

The first class of cases are those commonly met with, and are immediately referable to labour or abortion; the venous circulation of the uterus never recovers itself completely, and the body of the womb remains large and congested. It rarely happens that the structures which support the womb are able to support the increased weight, and displacement downward and backward is the general result. It is usually a slow process before the uterus becomes indolently hard, but every stage of its progress may be traced by examination. At first, the organ is large, and more or less displaced; but by passing the finger to the upper and back part of the vagina, the body of the womb may be touched *by itself*. In this stage, the uterus is painful when touched. It is a sure sign of a congested uterus when, in addition to any pain which its displacement occasions, it acquires a dull, or in some cases, a lively sensibility when touched. This sensibility is lost as the tissue becomes indurated. The size and degree of induration vary. The author states that he has sometimes found the posterior part of the womb as large as a moderate-sized orange. He has known this condition follow puerperal metritis, as also that form of metritis which is excited by sudden suppression of the menses, or the injection of an irritating fluid into the uterine cavity.

2. The second cause of congestion and hardening of the uterus is to be ascribed to ovarian irritation. It consists of great vascular turgescence, so that the walls swell out and soften. The author has known this form arise during protracted membranous dysmenorrhœa. He illustrates the effect of repeated ovarian excitement by reference to the altered condition of the uterus and its appendages in prostitutes.

3. The last series of cases of congested uterus, with subsequent enlargement, are those in which the internal sexual organs appear to be secondarily affected, the primary disorder being seated in the digestive system. This is commonly induced by a too rich and stimulating diet, by neglect of the bowels, and it may be associated with a gouty habit.

On the displacements of the uterus consequent upon its hypertrophy and induration.—The most common displacement referred to by the author is a sinking downwards of the whole organ, its axis being at the same time inclined backward. He does not meet with instances in which the unimpregnated uterus is so displaced that the os is tilted forwards under the pubes, and supposes that the diagrams so representing the empty womb are caricatures rather than faithful representations. The most usual inclination he finds to be as much backwards as it is normally placed forward. The effect of this, however, is to bring the posterior wall within reach of the finger, when it is felt to bulge out so abruptly from the cervix, as to lead to the supposition of a real *flexion* of the womb.

This degree of retroversion does not, in the author's experience, mechanically impede the functions either of the bladder or rectum, unless the female have a narrow pelvis. Those cases in which these impediments exist have generally arisen from the retroversion being caused by accident or violence, of which the author alludes to three instances.

The particular form of retroversion in which a bulky posterior wall projects abruptly from the cervix, is, the author observes, the only approach he has been able to make to the descriptions of *retroflexion* of the womb, and he therefore is disposed to deny the existence of that displacement altogether. He thinks that the existence of such a displacement has been supposed, in consequence of the deception which has arisen in the similarity to the touch of this bulging of the posterior wall of the uterus, and flexion of its body. The cases which he has been at one time impressed with the idea of retroflexion, have uniformly been found to be of this nature on more careful inquiry.

Symptoms.—A disease so varying in extent, produced by different causes, and occurring in women of different temperaments, is necessarily associated with diversity of symptoms. The author divides them into—1, those produced by sympathy; and, 2, those of a local kind.

1. *Sympathetic disorders.*—There is scarcely an organ in the body which may not be functionally deranged from a primary organic change in the uterus. Sometimes one, and sometimes another organ, is so prominently affected, as to divert the attention from the uterus, whilst in other cases these secondary derangements are trifling. Hysteria in all its forms, neuralgia, acute submammary pains, and intense periodic headaches, harass the patient, especially when the general health is feeble, and, in some instances, mental disturbance, and even complete alienation, may be the consequence. Of this a very instructive case is recorded. It is the digestive system which more uniformly suffers than any other, in sympathy with the solid engorgement of the uterus. The author has known the morning sickness of pregnancy for weeks together exactly imitated in this disease; but in general the more common signs of dyspepsia are present, such as loss of appetite, flatus, irregular bowels, &c. The continuance of these symptoms interferes with nutrition, and the patient loses health and spirits; she becomes habitually torpid and ailing, and disorder of the general health ensues. The great practical danger is that the stomach, and not the uterus, receives the attention of the practitioner.

Local symptoms.—These are not confined to the sexual organs, but include the bladder and rectum. The bladder is more commonly affected by nervous irritation than by actual pressure. It rarely happens that the catheter is required. The more usual vesical symptoms are, sharp darting pains near the orifice of the urethra, with frequent desire to pass water, and sometimes, especially about the monthly periods, a painful strangury. Incontinence of urine is not common.

Constipation is generally associated with this and other uterine diseases; but it may be questioned whether it arises from mechanical causes. As a general rule, the author thinks that it is chiefly due to habitual neglect of the bowels, though he admits that in some cases

the obstruction may be due to the pressure of the enlarged uterus upon the rectum. Two such cases are narrated.

The symptoms which arise from the uterus itself are partly functional and partly organic. There is sometimes profuse monthly discharge, but there is no uniformity in this respect; sometimes the periods are irregular and scanty, at others a deciduous membrane, or shreds are expelled with coagula, a form of secretion elsewhere shown by the author to depend on ovarian congestion and irritation. (See "On two forms of Dysmenorrhœa," Half-yearly Abstract, Vol. V, p. 141.) Towards the last menstrual crisis, copious floodings not uncommonly supervene. In the inter-menstrual periods there is more or less discharge of a glairy tenacious mucus, variously mixed with pus or thin subtile discharge.

Sterility is noticed by the author as a common result of the solid engorgement of the uterus, whether it is displaced or not. Drs. Simpson and Rigby, and Mr. Lee, attribute the symptoms to the displacement itself; but the author doubts this mechanical explanation, but believes impregnation to be prevented by the morbid state of the ovaries and uterus, with the increased and altered secretions of the cervix and vagina.

The symptoms which result from the size and displacement of the womb itself are those which most strongly attract the attention of the patient. These consist of pains in one or both inguinal regions; pains of a bearing-down character felt about the sacrum, and extending to the hips and thighs, which pains are relieved by lying down, and aggravated by long standing and walking. Sexual intercourse is occasionally painful.

Diagnosis.—Many diseases of the womb and its appendages are attended by much the same class of symptoms as those above described. Amongst these Dr. Oldham mentions small fibrous tumours placed centrally in the posterior wall of the uterus, ovarian tumours in the recto-vaginal pouch, and a womb enlarged by early pregnancy. The only means of diagnosis is that afforded by vaginal examination. The results are as follow:

It generally happens, when the uterus has been for a long time congested, that the vagina loses its tone. The womb itself is commonly felt low down. The cervix generally participates in the engorgement, and becomes more solid. The os uteri is commonly more open than usual, and soft granulations may be detected on one or both labia. The cervix is placed vertically in the pelvis, or looks forward. Passing the finger to the upper part of the vagina, and carrying it backwards and upwards, an even, round swelling, more or less large and continuous with the cervix, may be felt. This is sometimes painful, but the patient has always an organic perception of it. Not only is the swelling felt to be continuous with the cervix, but it moves with it, and the whole womb may be tilted forward by pressing it backward.

Speaking of Simpson's uterine sound, Dr. Oldham acknowledges its value; he is at the same time "bound to say, that it is not altogether a harmless instrument, and that it needs to be restricted in its use, and to be employed with gentleness and discretion." In the disease in question he has known serious mischief induced by it. In one case the

patient was seized with severe abdominal pain, incessant shivering, vomiting, and high febrile symptoms. In another case, abscess was produced by its use: in neither was any force used in its introduction. He also regards the possibility of destroying an ovum, as an objection to its frequent employment, having known three cases in which the membranes were inadvertently punctured by experienced obstetrical practitioners.

To distinguish between fibrous tumours of the uterus and chronic hypertrophy is generally easy. They are characterised by being circumscribed and uneven, hard and insensible. If, however, the tumour is more uniform, and limited to the posterior wall, the diagnosis becomes difficult or impossible.

The diagnosis from ovarian growths and tumours of the broad ligaments is thus made out:—An ovarian cyst, in its earliest stage, is a round, hard swelling, placed behind the womb, and pushing it bodily forward. As it enlarges, it gets before and above the organ. A hard strumous or fibrous tumour of the broad ligament is sometimes placed close behind the womb, and it is in their incipient stage that they have to be distinguished from enlargement of the womb. In many of these cases the diagnosis can be made out by feeling the whole of the womb before the tumour, the cervix being close behind the pubes, and as far as the finger can reach, running vertically upwards. Sometimes, however, the diagnosis is very obscure, and these are the cases in which a cautious use of the uterine sound is required.

Dr. Simpson mentions another kind of tumour which may be confounded with a retroverted uterus, which he names "pelvic cellulitis," a form of inflammation which may stop short of suppuration, and remain as a hard indolent swelling. The author has notes of four similar cases, all of which occurred in strumous women.

Treatment.—The treatment of the disease to which this essay is devoted is divided by Dr. Oldham into—1, the reduction of the size of the uterus; 2, the strengthening the weakened structures; 3, the improvement of the general health.

To fulfil the first indication he mentions, first, *depletion*. Local depletion may be practised by cupping on the loins; by scarification of the cervix, and by leeching the same part. Of these he prefers the application of four or six leeches, repeated according to circumstances. The cases in which this is required are those in which the uterus is swollen and painful from congestion, a state which precedes the induration.

Counter-irritants.—Blistering the sacrum or inguinal regions is often followed by immediate relief, and promotes the reduction. The author also uses the following combination, where a mild counter-irritant, and at the same time powerful sedative effect, is required:

Tinct. aconiti (Fleming's), ʒiv;
Ext. belladon., ʒss.;
Lin. camphoræ, C., ℥iss. Ft. lin.

Iodine.—The author has used iodine and its preparations, externally and internally, in chronic induration of the uterus, and believes that their virtues are much overrated. In some cases he has thought that they aggravated the congestion.

Mercury.—The effects of the more powerful preparations of mer-

cury in the acute inflammations of the womb are well known; but the agency of the milder preparations, long continued, in causing absorption of an hypertrophied womb, is, in the author's opinion, not justly appreciated. Of these, he considers the bichloride of mercury to possess peculiar advantages in the facility with which it may be combined with other remedies, as a vegetable tonic, or chalybeate. He gives it in doses of one or two drachms of the liq. hyd. bichlor., twice or three times a day. It rarely salivates, excepting the patient is exceedingly susceptible to the effects of mercury. The reduction of an indurated womb is generally slow, but in some cases six or eight weeks will suffice to absorb and soften a considerable hypertrophy.

Amongst the prophylactic measures to prevent fresh attacks of congestion, the author particularly urges the habitual relief of the rectum and colon, by tepid injections, or saline aperients, such as a combination of rhubarb and sulphate of potash. Long standing and sexual intercourse ought to be avoided, when it produces uterine tenderness.

In strengthening the tissues, much benefit is to be obtained by cold, alum hip-baths, with tannin suppositories, and astringent injections. The author strongly objects to pessaries, and trusts to an abdominal belt combined with a perineal pad. He does not dare employ Simpson's uterine supporter, the use of which we have before mentioned. (See Vol. VII, p. 313.)

The author does not refer to the last indication of treatment at any length, as the sympathetic symptoms are various, and their treatment is subservient to that of the womb. He approves of bismuth to allay gastric irritation.

Art. 70.—*On the Treatment of Uterine Catarrh, by Injections into the Uterine Cavity.* By Dr. E. Strohl.

(*Revue Méd.-Chirurg.*, Nov. 1848.)

The practice of injecting the uterine cavity has of late years been revived, but it is objected to by many, on account of the severe symptoms to which it has occasionally given rise. Thus Lisfranc observes: "The injection of the cavity of the uterus has been much vaunted as a cure for uterine catarrh; but the brilliant success which was at first anticipated, has been followed by the most disastrous results. Women have died from peritonitis, induced by the escape of the injected fluid through the fallopian tubes into the abdominal cavity. Even if it does not thus escape, it is easy to conceive that acute metritis may be induced, which may extend to the serous membrane; and for this reason I reject all irritating or astringent uterine injections, unless the life of the patient is threatened by the disease for which they are adopted." (Chir. Clin. ii, p. 326.)

It thus appears that Lisfranc is deterred from the employment of uterine injection by the fear of peritonitis, and that this peritonitis may occur either from the introduction of irritating fluids into the peritoneal cavity, or by extension of inflammation from the uterine tissue. These are serious objections, and deserve our attentive consideration. It cannot be denied that the passage of fluids by the fallopian tubes is possible, but cannot the accident be prevented? It

must be recollected that these tubes are long tortuous canals of very small calibre, and still smaller in their entrance into the uterine cavity. Fluid injected into the uterine cavity will not traverse these canals, if it can find a more ready outlet; all, therefore, that is required is, to use an instrument which shall have a means of exit for the fluid.

[The author has been anticipated in this by Dr. Evory Kennedy, who has recommended a special instrument for the purpose of avoiding danger, and which is described in a former Volume. (See Abstract, Vol. V, p. 147.)]

The second mode of production of peritonitis is more probable in its occurrence, but not so likely to happen as is represented. The uterus is continually subjected to the application of the knife, caustics, &c.; and all sorts of instruments are introduced into its cavity, but it is rarely that dangerous symptoms result. And even if metritis be developed, it does not follow that it should extend to the peritoneum; and when it does, it is, we believe, oftener the fault of the physician than of the mode of treatment.

In order to obviate danger, two things are to be considered—the mode of using the injection, and the qualities of the injection itself.

The operation requires the following instruments:—1. A speculum of full size. 2. A gum-elastic sound, open at both extremities, and of size sufficient to allow a reflux of the injected fluid. 3. A syringe of ordinary capacity. The speculum and sound being introduced, the fluid is to be slowly injected, no force being used to overcome resistance. The sound is to be introduced about an inch or an inch and a half.

The fluid generally employed by the writer is a weak solution of acetate of lead. He also occasionally uses a solution of iodide of iron, from ʒss to ʒj, to ℥iv distilled water, as well as a solution of nitrate of silver. The injection may be repeated every day, unless some tenderness is induced, when an interval of one or more days should be allowed to elapse. They should also be omitted for a few days preceding and after the menstrual periods; the operation is not attended with pain. The discharge is often immediately changed in character, becoming pure white, and less thick and abundant. It then remains stationary in appearance for a few days, after which it diminishes still further in quantity, and becomes transparent. When this is the case the injections may be suspended.

It need not be stated that injections into the uterine cavity are not admissible in acute or subacute inflammation of the organ. Hypertrophy of the cervix does not, however, contraindicate their use; ulceration of the os and cervix, when present, should be treated by cauterization previously to attempting the cure of the uterine catarrh.

The accidents which are liable to supervene upon the employment of injections into the cavity of the uterus are transient hypogastric pains and hysterical attacks. The pains are probably caused by the temperature of the injection, and may be prevented by using it tepid. The hysteric symptoms are not of importance, unless they appear after each injection with unabated severity, when the treatment ought not to be persisted in.

[The author's observations are chiefly derived from the class of prostitutes, most of whom had been the subject of venereal diseases. The discharge consisted of an opaque tenacious mucus, and could be seen to issue from the os uteri. He records twenty-nine cases, in twenty-five of which the treatment was successful. In the majority the solution of acetate of lead was found sufficient; in one or two only was it necessary to resort to a more stimulating medication.]

ART. 71.—*On Cerebral Disturbance, the Result of Uterine Disorder.* By G. CORFE, Esq., M.D.

(*Medical Times*, April 4, 1849.)

The author has observed a peculiar train of symptoms in connexion with the climacteric period of females. The subjects are ordinarily from thirty to forty-five, and it occurs more frequently in barren or unmarried individuals. The symptoms, as far as the author has hitherto observed, are ushered in with occasional flushings of the face, succeeded by more or less perspiration, a sense of faintness, and subsequent depression of spirits. Sudden pain then ensues, either occipital, frontal, or in the course of the longitudinal sinus, where, as with some women, the hair is parted; the sensibility of the scalp is increased, and the pain is oftentimes momentary in its onset, and partial in its seat. As the disorder advances there is more or less noise in the head, described as humming, buzzing, singing, or rumbling; then comes on deafness of one ear, muscæ volitantes, palpitations, irregular action of the heart, an oppressed pulse, a weight over the forehead, or at the back of the neck; a frequent sense of formication over the face and chest, especially whilst the person is warm in bed and about to lose themselves in sleep, cramps in the legs, transient numbness in one arm, usually the left, and pain passing down the hand, and into one finger. Extreme mental and bodily depression, a peculiar feeling of dread hangs over the mind whilst the attack is hovering about them, and the least excitement, as the slamming of a door, or the double knock of a postman, will throw them into a most distressing fit of nervous suffering. The disorder is attended oftentimes with a species of fit, not unlike that of epilepsy, and anæsthesia or paralysis, or both, of one arm and leg, may occur and remain for several days.

The period of time at which the attack comes on, or is aggravated, is also worthy of remark. If the individual does not rise in the morning with these cerebral disturbances, they will come on in the after part of the day, and they are especially aggravated if a sense of hunger ensues and it is not speedily gratified. There may be also flatulence, some obstipation of the bowels, and a capricious appetite. A spontaneous separation of crystals of pure lithic acid will oftentimes remove the distress for weeks, when it recurs with equal severity.

The individuals who appear most prone to these distressing symptoms are those who inherit a gouty diathesis, who live freely on animal food, and who have been the subject of great mental exertion. The stomach is the first organ which developes the attack,

although the uterus, it should be observed, is the viscus originally in fault. There has been menorrhagia, or dysmenorrhœa, with more or less debilitating leucorrhœa.

The catamenia have been "dodging" the patient for some months, and, under an apprehension that this secretion was about to terminate altogether, the patient has kept silence upon the matter, and sought for no medical advice, until the constitution has become unstrung, the fluids vitiated, the stomach deranged, the mind harassed, and oftentimes not until then, have they been compelled to seek for medical aid. The physiognomy in such instances is frequently very instructive; there is a sallow tint around the eye, a heavy expression of face, and a general sadness depicted in the countenance. They tell you that they are often seized with partial dimness of sight, duplex vision, or that they are deprived of the power of distinguishing one half of another person's face, just as the late Mr. Abernethy was wont to describe to his class, when speaking of injuries of fracture to the crista galli of the ethmoid bone.

Many instances of the above malady have been erroneously classed under the titles "apoplexy," "cerebral congestion," "threatenings of cerebral effusion," &c., and the lancet, with local depletion, have been unsparingly employed. Such antiphlogistic measures have invariably added to the mischief, and have increased the patient's sufferings.

The explanation of these morbid changes and symptoms, appear to the author to be this: that the catamenial secretion, from some constitutional cause, which is probably seated in the organs of assimilation, becomes altered in quality and in quantity;—the elements of this fluid are thrown back on the circulation, and morbid bile on the one hand, and a lithic-acid diathesis on the other, is the ordinary result. There is no organ in the female economy that so readily partakes of disturbance from uterine irregularities as the liver; and the instances are not few where protracted menorrhagia has resisted astringents, quinine, and the ordinary treatment, whilst it has yielded to brisk and frequent purgation, with small intermediate doses of calomel, &c. In such cases the uterus takes on the action of the liver, and so long as the latter viscus is allowed to remain in its torpid condition, so long also will the uterus continue to pour out an undue quantity, or an altered quality of dark venous fluid, and the patient becomes enfeebled, harassed, and distressed; hemorrhoids are not unfrequently induced also. But no sooner, ofttimes, do the remedies tell upon the hepatic branches of the portal system of the liver, than the intestinal portion of the same system becomes relieved from its congested state, and the uterine discharge is shortly subdued.

It is from such observations that my mind was originally led out into the study of these painful attacks of the nervous system, and I can confidently assert, that a very large number of women, who would have been treated ten years ago with frequent bloodletting, and other antiphlogistic remedies, have been perfectly convalescent from a totally opposite method. The stomach, liver, and kidneys, appear to be the principal organs which suffer from derangement, and, in order to restore to the former viscus its healthy tone and vigour, scrupulous

attention must be paid to the diet. Mutton, roast and boiled, fish, poultry, fresh game, cacoa nuts boiled, or coffee, not too strong, and draught porter, is the most agreeable diet for such a stomach; but the benefit derived from taking six or twelve fresh oysters without any other food, or additions, as pepper, vinegar, &c., or even bread, upon an empty stomach, as for luncheon, for instance, has been most remarkable in some severe cases which I have witnessed. Their alkalescent character has removed the morbid acidity of the stomach, whilst it has restored its tone and vigour, and the following draught has been ordered to be taken every morning on rising:

℞ Ammoniæ hydrochloratis, grs. x;
Extr. taraxaci, ʒss;
Dec. aloes comp.;
Mist. gent. comp., āā ʒv;
Sodæ pot. tartratis, ʒj;
Tr. lavandulæ comp., ♏ xx. Fiat haustus.

If this aperient should not prove of sufficient activity, it must be repeated in the middle of the day; but, on the other hand, if it is too active, the draught may be only taken every other or every third morning, yet it is of greater importance that the alimentary canal should be freely acted upon once or more daily, than that it should be allowed to continue in a torpid condition.

Another useful remedy is to clothe the loins with the emplastrum opii (Ph. Lond.), or else with a long strip of new flannel; and, in order to assist the liver in its healthy functions, a warm bath and occasional friction over the skin with sand-soap or a horsehair glove usually promote the healthy action of the abdominal viscera.

Art. 72.—*Case of Hydrometra in an Unimpregnated Uterus.*—Dr. Grandidier mentions the case of a female, æt. 21, unmarried. Her menstruation had never been regular, but she had complete suppression, after which her abdomen began to enlarge, and in a few weeks reached the size of that of the full term of gestation. As she was proved not to be pregnant by vaginal examination, she was treated for ascites, and after the performance of paracentesis, without the evacuation of fluid, hydrometra was suspected. She was now ordered ten grains of secale cornutum every two hours until uterine action ensued. After having taken 120 grains, this occurred, and a large quantity of clear water was expelled. She improved materially after this, and menstruation returned; but she had several returns of her disease at intervals, and was not entirely relieved until she underwent a course of mineral waters.

Neue Zeitschrift für Geburtskunde, Band 24, p, 261.

Art. 73.—*On the Treatment of Chlorosis.* By Dr. R. C. Golding.

(*Obstetric Record*, March 1, 1849.)

[The essential points in the treatment of chlorosis are arranged by the author under the following heads:]

1. To improve the condition of the blood.
2. To improve the secretions generally.

3. To restore the deranged uterine functions.

4. To alleviate coexisting organic lesions, as far as alleviation is possible.

5. To alleviate the hysterical, dyspeptic, and cerebral symptoms, such frequent adjuncts to the chlorotic state.

6. To quiet the inordinate action of the heart, and to relieve pulmonary congestion, if existing as a concomitant.

7. To dissipate the dropsy, and to prevent its recurrence.

1. This is done by the strictly tonic plan; of remedies, none are so generally efficacious as the preparations of iron, whether administered in the ordinary pharmaceutical forms, as chalybeate waters, or as the fancy of special prescribers directs. The best of all perhaps, and that most likely not to disagree, when its administration is prolonged (in many cases imperatively necessary), is the muriated tincture, with infusion of quassia; this formula may be alternated with quinine and dilute sulphuric acid.

2. Improvement of the secretions is as well necessary for the chlorotic state itself, as to render efficacious the tonic plan just mentioned, since, if there be much derangement of the secretions, especially of the primæ viæ, chalybeates, and quinine are either of no use or may be positively injurious. For this purpose, alterative doses of mercury, small doses of iodide of potassium, rhubarb, and of aloetic preparations, are decidedly the best. During the administration of iron, a purgative every third or fourth day is necessary. If tænia exists, turpentine, the pomegranate-root bark, or the male fern-root may be employed for their expulsion.

3. To restore the uterine functions to their healthy standard, little of a special kind can be effected. With the return to health, and as the blood improves, the uterus becomes less deranged, and the secretions generally become improved. Aloes is thought to possess a specific action on the lower bowels, and by *sympathy of contiguity*, an action on the uterus also; however this may be, it may be safely exhibited, and is perhaps the best purgative to be given during the administration of chalybeates, as it evacuates the lower bowels without producing watery stools, with the corresponding debility, local and general, consequent thereon; it progresses also a tonic action on the muscular tunic of the lower bowels. Rhubarb, as a carminative and cholagogue, is highly useful in chlorosis. Other remedies directed to the uterus may be used: the hip-bath, friction to the loins, groin, and inner part of the thighs; electricity is often peculiarly useful, and horse exercise; all of which, by inducing congestion of the pelvic viscera, and increasing the force of the general circulation through the generative organs, will often reinduce the menstrual secretion. Of course nothing of a special nature will be of avail, without the concurrent plan of treatment mentioned under the first two heads.

4. It was proposed in the earlier portion of this dissertation to include under the term chlorosis all those morbid conditions of the system, dependent in a great measure on a defect in the red globules of the blood, both as to quantity and due development. It was mentioned also, how often the chlorotic state was a sequela of degenerated states of the kidneys, with albuminous urine, and how sometimes even

such states of the kidneys might be induced by a pre-existing impoverishment of the blood. It must be evident, therefore, how much care such states of the kidneys demand, when existing as a complication of chlorosis; active diaphoresis, free purging, and the eschewing of diuretics, in this manner keeping the renal structure uncongested, are all the measures which experience has proved as of any avail. Other complications need not be detailed; their presence must be detected if possible, and their effects combated as occasion requires.

5. For the hysterical symptoms of chlorosis, antispasmodics and sedatives may be employed, although their efficacy here is not so well marked as in hysteria from other causes. Ether, valerian, assafœtida, opium, and hydrocyanic acid are those most in use. For the local neurotic affections so common under such circumstances, it is better to do nothing; if anything relieves, I believe the tartar-emetic ointment to be the best counter-irritant, as its effects are not so transient as most other forms of counter-irritation. Although both general and topical bloodletting are often resorted to with temporary relief, little ulterior good can result, and much harm *may* be done by its employment. However distressing these symptoms may be, they need not alarm either the patient or the friends, since their supervention, decline, or recurrence, and their intensity at all times, are as multifarious as all such neurotic affections are under other circumstances. The vapour of chloroform may be used to ward off the hysterical fit, if of such existence as to cause alarm.

6. When the heart's action is inordinate, and symptoms of angina exist, a belladonna plaster to the cardiac region is of use. When the bellows-murmur exists, its gradual diminution is a good index of the progressive improvement of the blood. To keep the lungs uncongested (as congestion is a frequent cause of tubercular deposition, a predisposition existing thereto), warmth to the surface, with as perfect freedom as circumstances will allow, from increased action of the heart, must be enjoined.

7. To ward off, or dissipate, when present, the dropsy of chlorosis, flannel next the skin, a light bandage to the œdematous parts, an elevated posture of the affected parts when at rest, and slight friction, are useful as auxiliaries; it is only eradicated and prevented from returning, after having once existed, with the improvement of the blood, on whose impoverishment it mainly depends. It must be borne in mind, that the imperfect nutrition of the skin over dropsical parts renders inflammation easily excited on comparatively slight irritation.

Art. 74.—*Sore Nipples treated by Solution of Gun-Cotton.*—The following observations are quoted from Prof. Simpson's paper on gun-cotton solution:—It has been proposed to use the ethereal solution of gun-cotton for other purposes than the dressing and union of wounds—for example, as a substitute for the starch bandage in fractures; as an application and dressing to ulcers, &c. In abrasions and slight injuries of the skin about the fingers, it forms an excellent and adhesive dressing. There is one extremely painful and unmanageable form of ulcer in which I applied it eight or ten days ago, at the Maternity Hospital, with perfect success. I allude to fissures at the base of the

nipple. Most practitioners know well the agony that some mothers undergo in consequence of this apparently slight disease; the ulcer or fissure being renewed and torn open with each application of the child. In two such cases I united the edges of the fissures, and covered them over with the solution of gun-cotton, making the layer pretty strong. It acted successfully by maintaining the edges so firmly together, that they were not again reopened by the infant: the gun-cotton dressing was not, like other dressings, affected by the moisture of the child's mouth; and as a dressing, and at the same time, by securing rest to the part, it allowed complete adhesion and cicatrization speedily to take place. I have applied it also repeatedly to ulcers of the cervix uteri and over various cutaneous eruptions. Its application relieves at once the smarting of slight burns.

Obstetric Record.

Art. 75.—*On Prolapsus Uteri.* By Professor Hohl.

(*Zeitschrift für Geburtskunde*, and *Brit. and For. Medico-Chirurg. Review*, April 1849.)

Professor Hohl believes that some very erroneous notions prevail as to the *causes* of this occurrence, and that some light may be thrown upon the subject by considering the changes of position which the uterus normally undergoes at different periods of life. In the mature fœtus the uterus projects considerably beyond the pelvis; and it is only when it has acquired its completed shape and size at puberty, that it is found entirely within the cavity. At the commencement of the menstrual cycle it retains its position, or even rises still higher in the pelvis, while at the termination of this it again sinks, with the loss of blood, in stout young women. In women who seldom or never bear children it sinks still deeper, as it does too after the menstrual functions have ceased. In pregnancy the organ rises remarkably, and M. Hohl denies the correctness of the statement that it sinks lower in the pelvis after the second month, the apparent sinking being due to the turgescence of the organ, and especially of its cervix. After delivery the uterus remains high up in the abdomen, and only gradually resumes its ordinary position. In old women it is found deep in the pelvis.

The production of prolapsus is not dependent upon the condition of the vagina and the ligaments of the uterus. The vital power of the organ may be said to maintain it in position. When this is augmented the uterus is raised, while, when it is diminished or lost, it descends. Other organs, and indeed the whole body, in like manner exhibit strength and power proportionate to their *turgor vitalis*. The increase of the vital activity of the uterus during its development and growth, as also during menstruation and in pregnancy, is attended with elevation of the organ, which sinks again when these conditions prevail no longer. So far from allowing that the prolapse results from defective supporting power of the vagina, we may rather regard the uterus as supporting the vagina, and prolapsus of the latter may occur without any prolapsus uteri.

Thus the author refers the production of prolapsus to a preceding coexisting condition of health, giving rise to a diminished vitality.

This explains why we so seldom meet with the disease in young healthy women; while we know that whatever favours the relaxation of the genital system, and lowers the tone of the fibre, acts predisposingly,—the germ of the evil being found in the puerperal condition, when the uterus, after having been high up in the abdomen, sinks down into the lesser pelvis.

Although prolapsus may be secondarily produced by other affections, as tumours of the belly, prolapsus vaginæ, cystocele, &c., yet far more frequently a change in the direction, rather than in the position of the organ then takes place; and even while the portion of the rectum in connexion with its posterior wall may prolapse entirely, the uterus may retain its normal position.

There may be a diseased condition of the economy in general, or of the uterus in particular, upon which depends this extinction or diminution of its vital power; and accordingly as this is or is not curable, will depend whether the cure of a prolapsus is apparent or real; as mere reposition with mechanical support is not a cure. In some diseases which are attended with an increased activity of the uterus, there is a rising of the organ in the pelvis, as puerperal fever, hydrometra, &c. Diseases of the ovaries do not produce any sinking of the organ; nor do tumours or indurations of its substance as long as they are in process of development, nor until they have interrupted its functions, or weighed it down by their great bulk. Polypi also seldom give rise to prolapsus.

Treatment.—Common as is the disease, a radical cure is seldom accomplished. The indications are to remedy the defective or disordered condition of the general vital powers, or of those of the uterus in particular. The author especially warns us against the continued use of injections, and the too early employment of pessaries. When the vital power of the sexual system or uterus is exhausted in consequence of age, over-stimulus, or incurable disease, mere palliative treatment should be employed.

Art. 76.—*Excerpta from Lectures*, by Dr. Tyler Smith.

(*Lancet*, Oct. 21, 1849.)

I. *Encysted placenta.*—This is an uncouth name sometimes given to cases in which the sphincteric contraction of the os uteri comes on rapidly after parturition, before the placenta has been expelled. The placenta, in these cases, may be either attached to the uterus, or it may have been thrown off, and be lying close within the contracted os uteri. This complication is most common after acute labours, or where the pains have been excessive, up to the time of delivery, in prolonged labours. Excepting that it occurs after delivery, instead of in the early stage of parturition, it is comparable to that form of rigidity in which sphincteric contraction of the os uteri is predominant. Owing to the increased mobility which the os uteri acquires during the progress of labour, the post-partum contractions are more forcible than any active contraction which occurs before delivery; and the rigidity is never mechanical, because of the great dilatation which has occurred during the progress of the labour.

In treatment, it is of considerable importance to deal promptly with these cases. The longer the os uteri remains contracted, the more difficult will its dilatation, so as to admit of the extraction of the placenta, become. If the placenta can be felt close to the os uteri, gentle but firm traction of the cord, held as near as possible to its root in the placenta, should be used, so as to convert the placental mass into a dilator. If this plan should not be successful, the os uteri must be slowly dilated by the fingers, so as to admit the hand or fingers, according as the placenta may be required to be detached from the uterus, or merely withdrawn from the cavity. The utmost gentleness consistent with the necessary force should be employed; and if necessary, any threatening of convulsion or laceration should be prepared for by bloodletting. If the patient's mind should be excitable, or the dilatation of the os uteri should be painful, an opiate is of great use; but it acts rather by soothing mental emotion and allaying pain, than by reducing the spasm of the os uteri. We can often beneficially assist the effects of traction of the umbilical cord in dilating the os uteri, by gentle pressure exerted externally upon the abdominal surface at each recurrence of the uterine contractions; sweeping the placenta as it were into the pelvis and towards the os uteri, by the hand, while steady traction of the cord is being kept up.

The foregoing remarks apply to cases in which the placenta is either wholly adherent to the uterus, or the uterus at large is so firmly contracted upon the separated placenta as to prevent internal uterine hemorrhage. Cases, however, occur, in which spasmodic closure of the os uteri is attended with separation of the retained placenta, and inertia of the body and fundus. In such cases, dangerous internal hemorrhage is inevitable, and the removal of the contraction of the os uteri becomes quite of secondary importance to the arrest of the hemorrhage. Our first object here must be to excite such an amount of uterine contraction as to stay the loss of blood. In all cases where the first steps taken for the dilatation of the os uteri, which of themselves tend to produce uterine contraction, are ineffectual, the uterine inertia should be treated most energetically *per se*, without any reference to the state of the os uteri.

II. *Hourglass contraction.*—In some cases of retained placenta the uterine spasm is not situated at the os uteri, but at the junction of the cervix uteri with the body of the organ, in the same situation, in fact, as the narrow portion of the organ in the unimpregnated state, and at which the greatest resistance is met with in the introduction of the uterine sound. In other cases the constriction is still higher up, involving the body of the uterus, being similar in its nature to those band-like spasmodic contractions, which are sometimes observed in the large intestine. In the lower animals, when the uterus in its anatomy resembles an intestine, there can be no difficulty in understanding this form of annular contraction.

In other cases, the hourglass contraction occurs after the separation of the placenta, when it may be the cause of internal hemorrhage, because of the inertia of that portion of the uterus which is above the stricture. After the expulsion of the fœtus, the contractions of the

uterus ought to be uniform in the entire organ, so that in hourglass contraction there is always a double departure from the physiological condition of the uterus; there is both spasm and inertia. The treatment of these cases must be conducted on the same principles as cases of sphincteric contraction of the os uteri; but we have an additional remedy, of considerable efficiency, in frictions applied to the abdomen over the uterus. True and complete hourglass contraction is a rare affection; but in very many cases of post-partum hemorrhage, portions of the uterus are spasmodically contracted, while others are so relaxed as to admit of the flow of blood from the mouths of the vessels on its internal surface. Occasionally it happens that one lateral half of the uterus will be contracted, while the other half is relaxed. In cases of hemorrhage, with hourglass contraction, there may be no escape of blood per vaginam, the effused fluid being confined in the upper chamber of the uterus by the stricture.

The causes of the hourglass contraction may be any of the causes of acute, irregular, or tardy labour; but it most generally occurs after rapid parturition, particularly the rapid transit of the child through the external parts. Coagula in the uterus, the retained placenta, or improper traction of the cord, and mental emotion, are all exciting causes of the accident.

III. *Inversion of the uterus.*—This accident has sometimes been attributed to inverted action of the uterus, but more generally to mechanical traction of the cord, and injudicious attempts at removing the retained or adherent placenta. When inversion is referred to traction of the umbilical cord, whether in consequence of a short funis, the sudden birth of the fœtus while the mother is in the upright position, or the attempts of the obstetrician to remove the placenta, it is always believed to depend on the merely mechanical force which is in operation. It is considered that the fundus uteri is dragged down mechanically through the os uteri and vagina, the uterus being supposed to be passive during the occurrence of the inversion.

From the best consideration I have been able to give the facts of inversion, I am persuaded that it depends in *all* cases mainly upon an *active* condition of the uterus. Where it takes place without any mechanical interference, there can be no doubt of the preternatural and perverted activity of the uterus. But I am convinced, that even in cases where the placenta is attached to the centre of the fundus, and when the cord is drawn through the vagina with any amount of force likely to be exerted by an accoucheur, it is not a mere mechanical displacement which produces the accident, but the irritation of the fundus uteri, by traction, excites contraction of the fundus, thus producing that contraction and descent of the fundus uteri, which is the first stage of the accident. The common opinion has very naturally arisen from observing, in some cases, that the fundus uteri, when the placenta is firmly attached, follows the advancing cord, while traction is being used. According to my view, the depression of the fundus uteri, even in these cases, is not a simple yielding of the part, according to mechanical principles, but an active contraction, excited by the irritation of the fundus uteri by the traction of the placenta.

To pursue the steps by which complete inversion is produced. There is, first, cup-like depression of the fundus uteri; coincident with, or immediately following upon, this depression, there is hourglass contraction of the body or lower portion of the uterus. The annular contraction of the body of the uterus grasps the introcedent fundus as it would a foreign body, and carries it downward, for expulsion through the os uteri, the os uteri being at this time either in a state of inertia, or actively dilated, the same as at the end of the second stage of labour. After the inverted uterus has passed through the dilated os uteri, this part of the organ becomes contracted, preventing reversion from taking place. Thus, there is, first, depression of the fundus uteri, with annular or hourglass contraction of the body of the uterus, and dilatation of the os uteri. Next, there is intussusception of the fundus by the body of the uterus. Lastly, complete inversion occurs, with contraction of the os uteri upon the inverted organ. If we wished to describe this accident in three words, they would be—introcession—intussusception—inversion. The displacement may not be complete; it may in some cases stop at introcession; in others, at intussusception, and then return to the natural state; or it may remain intussuscepted. Inversion produces violent disturbance of the nervous system, and is frequently attended by alarming hemorrhage. But the symptoms of the intussuscepted uterus are still more violent. The strangulation of the fundus is almost as severe a shock to the system as actual rupture. In inversion, the hemorrhage is somewhat arrested by the os uteri acting as a tourniquet to the uterus. We may compare perfect inversion of the uterus to intussusception of the intestinal canal, only that the intussuscepted portion of intestine is not protruded externally. Probably, many cases of prolapsus ani should be called inversion of the rectum rather than prolapsus.

Inversion generally occurs quickly after the delivery of the fœtus, between the expulsion of the child and the expulsion of the placenta. I have known it to take place after the death of the mother, and after rupture of the uterus had occurred. In the latter case, the fœtus was passed into the peritoneal cavity, while the uterus became inverted, and protruded through the vagina. The predisposing causes of the accident are the causes of acute labour and excessive or irregular action of the uterus. It is of very great importance to understand clearly the real nature of inversion, as it is one of those accidents which are most confidently referred to malpractice. The less it is considered a mechanical displacement, the less disposition will there be to attribute it to the accoucheur; owing to the prevalence of the mechanical idea, obstetricians have sometimes been blamed most unjustly in cases of inversion.

The treatment consists of the mechanical reposition of the uterus. Immediate steps should be taken to reduce the inversion, because of the rapidly increasing contraction of the os uteri, which, by impeding the circulation, causes an increase in the size of the tumour. The size of the uterus should be reduced as far as possible by pressure, and by detaching the placenta in cases where it still adheres. By moderate but sustained force the uterus is then to be passed up through the vagina and os uteri. After the organ has been partly

passed through the os uteri, the muscular action of the uterus itself assists in restoring it to the proper position. It is reinstated with a sudden jerk, causing a considerable report at the moment of its restoration. In cases where intussusception exists, the hand must be passed through the os uteri, so as to overcome the annular contraction, and to restore the intussuscepted portion to its proper position. Cases of intussusception and inversion require careful watching until the uterus has permanently contracted.

IV. *After-pains.*—A certain amount of periodic uterine contraction after labour, attended with some degree of pain, is strictly physiological, the object to be effected being the safe and permanent contraction of the uterus. When these pains are excessive or long continued, they become pathological, and are proper objects of treatment. Some accoucheurs, believing them to be always beneficial in their results, are very jealous of any attempts to moderate their force or duration; but there can be no doubt that, if unchecked, they will, in some cases, pass on to metritis and other morbid conditions of the uterus, or they may excite an attack of puerperal convulsion.

Whilst a physiological amount of after-contraction of the uterus should never be interfered with, excessive or pathological action should always be moderated, if possible. It is true that we sometimes observe morbid after-pains, by expelling coagula from the uterus, effect their own cure, in removing the source of irritation, just as we see vomiting of purging relieve themselves by the rejection of morbid matters from the stomach and intestinal canal. But we often see vomiting or diarrhœa, when once induced, continue long after the irritating matters have been expelled: and so it is with the uterus. The one is as legitimate and imperative a subject for treatment as are the other two.

At each after-pain the entire uterus is contracted into a hard and painful ball, or it is irregularly contracted so as to feel firmer in some places than in others. It often happens that each after-pain is attended by a discharge of coagula, or of the lochial fluid, though sometimes there is an absence of all discharge per vaginam. In ordinary cases, after-pains increase in severity with every succeeding labour, and as a general rule, they are more troublesome the shorter the duration of the individual labour. Cases, however, occur—those in which there has been dysmenorrhœa, with great irritability at the ovarian periods of pregnancy—in which after-pains are very distressing in primiparæ. As to the seat of the pain, it is partly uterine and partly lumbar, the latter probably being dependent upon the ovaria. Sometimes the contractions are not confined to the uterus, but the abdominal muscles become affected, cramps or spasmodic twitchings of the limbs occur, and the pain which begins in uterine contraction alone, may, by an extension of reflex action, terminate in convulsion.

The main cause of excessive after-pains consists in the excitable condition in which the uterine and ovarian nerves, both as regards reflex action and sensation, are left after parturition. In this state of excitability, the uterus is roused to contractions by the ovarian stimulus, by the state of the surface from which the placenta has sepa-

rated, by coagula within the uterus, and by various extra-uterine stimuli. Thus when the after-pains are excessive, the physiological reflex relations between the breasts and the stomach, and the uterus, excite the most painful action of the latter. The patient can neither drink nor apply the child to the breast without renewing the agonies of labour. Any emotional disturbance aggravates the suffering; the acts of coughing, sneezing, defecation, micturition, or even voluntary movements of the patient in changing her position, &c., produce violent pains, chiefly because of the compression of the uterus by the abdominal muscles. But the uterus is sometimes in such a tetanic state, that the slightest movement of any part of the body excites it to violent spasmodic action.

The treatment of after-pains is very simple. It consists in the removal of coagula from the vagina and os uteri, the avoidance of all the extra-uterine causes of uterine contraction, and the application and administration of opiates. A great objection is made to opiates by some persons, as I have already said. I do not, however, believe that a moderate or even a full dose of opium really weakens the uterine contractions; on the contrary, I believe it allays the sensibility of the uterus, and at the same time increases rather than diminishes its contractility. Gentle friction with the linimentum opii over the abdomen is often very useful; but I have found still greater benefit from the application of this liniment to the mammæ. By a reflex action, it allays the excessive sensibility of the uterus, when thus applied. Probably, when applied to the abdominal surface, its sedative influence is also of a reflex kind. The sensorial connexion between the nerves of the abdominal surface and the abdominal and pelvic organs is very striking in some diseases. For instance, in peritonitis, there is actual and intense tenderness of the skin of the abdomen in addition to the tenderness of the subjacent peritoneum. This is a slight digression; but I mention it to show the reflex sensory connexion between the surface and internal organs, which, in the case of after-pains, may be made of considerable therapeutic service.

In excessive after-pains, without hemorrhage, without the presence of coagula, and in the absence of other signs and consequences of inertia, the infant should never be applied to the breast for some hours after delivery; not, in fact, until the uterus has become calmed from its state of morbid excitability. Early and constant stimulation of the breasts by the child is a common cause of irritable uterus for many days after delivery. This agency, so salutary in all cases of impending inertia, is often made, unnecessarily, a cause of miserable suffering, at a time when the patient is little able to endure it, and without any counterbalancing good, if the uterus has contracted healthily. I repeat, we want no more than safe contraction; every after-pain beyond this point is both unnecessary and mischievous.

ART. 77.—*Observations on some Forms of Uterine Hemorrhage, in connexion with the Delivery of the Placenta.* By ROBERT CANE, M.D.

(*Dublin Quarterly Medical Journal*, Nov. 1848.)

[The author's remarks in the following paper are confined to the hemorrhage which occurs after delivery of the fœtus, and which is strictly connected with the state of the placenta and its delivery, or else with some condition peculiar to the patient's constitution. He considers this form of hemorrhage usually to depend on one or other of the following causes:]

1. Too rapid delivery of the fœtus.
2. Too slow delivery of the fœtus.
3. Premature rupture of the membranes.
4. Partial separation of the placenta.
5. Portion of the placenta left behind.
6. Retention of an unattached placenta in a malposition.
7. Atony of the uterus.
8. Hemorrhagic tendency in the individual.
9. Over-distension of the urinary bladder.
10. Laceration of the perineum.

[The author considers each of these causes separately, dwelling, as he proceeds, on some points not sufficiently noticed in works on midwifery, especially in reference to the ingesta, and state of the bladder, as tending to cause and prolong the hemorrhage. He also notices certain signs as indicative of approaching hemorrhage, viz. the state of the pulse, the state of the uterus, and the sensations of the patient herself.]

1. *Too rapid delivery.*—When the fœtus is expelled rapidly there is often a large escape of blood, both prior and subsequent to the removal of the placenta. It appears, the author remarks, as if the uterus had not been sufficiently exercised by previous attempts at contraction to give it that tone and power which will enable it to contract perfectly, and close the mouths of the blood-vessels. The bleeding, he notices, may be internal or external.

2. *Too slow delivery.*—Presents nearly the same features as to the mode of bleeding, and differs only in the nature of the cause, which appears to depend on actual debility of the uterus. It, therefore, happens that this variety of hemorrhage is apt to be more unmanageable than the other. It is often met with among those who have married too young, and who have had a numerous family.

3. *Premature rupture of the membranes.*—This the author has not seen noticed as a cause of hemorrhage; but he is convinced of its agency. This is understood by an examination of the results of rupture of the membranes in the placenta. While the membranes are unbroken, the author considers that they reduplicate the power of the uterus, by dragging down the edges of the placenta. As soon as they are ruptured, this auxiliary power is lost. The author states his conviction that hemorrhage is more frequent when the membranes are early ruptured, and also that in such cases he has oftener met with adherent placenta.

[The general experience of accoucheurs is undoubtedly against the

practice of early rupture of the membranes; but more, we believe, from the knowledge that the bag of liquor amnii is the wedge adapted by nature for the safe and gradual dilatation of the os uteri, than from any conception of its tendency to induce hemorrhage. It is easy to conceive, however, that the delivery of the placenta will not be so "clean" and easy as when the membranes have been unruptured for a considerable time.]

4. *Partially detached placenta.*—This may arise as a consequence of the preceding, as a result of imperfect uterine action, or from injudicious efforts to separate the placenta by dragging the cord. It is generally serious, and requires to be promptly dealt with.

5. *Portion of the placenta retained.*—This is generally the result of improper force in removing the placenta.

6. *Retained, detached, but malplaced placenta.*—In a natural condition the detached placenta is so placed that the gradual and equable compression of the contracting uterus, while it condenses its tissues, prevents the escape of blood; but if the placenta be misplaced, doubled on itself, or turned with its amniotic surface towards the uterus, and its maternal surface looking downwards or to one side, it interferes with the perfect adaptation alluded to, and blood escapes.

7. *Atony of the uterus.*—This class includes atony resulting from peculiarity of constitution or extreme vital prostration, or from disease.

8. *Hemorrhagic tendency.*—Such cases are often met with in strumous subjects.

9. *Over-distended urinary bladder.*—The author considers that an over-distended urinary bladder may favour hemorrhage, by the relaxing effect of the warm urine superimposed, acting much in the same manner as a hot-water bottle applied to the pubes.

9. *Lacerated perineum.*—This is mentioned only to guard the practitioner against mistaking hemorrhage so arising from uterine bleeding.

[The author next proceeds to the treatment of the above forms of hemorrhage, premising it with remarks upon the proper mode of applying pressure over the uterus, and other matters incidental to the lying-in room. He is a strong advocate for cold vaginal injections; and objects to the use of the plug, for the reason usually alleged, that it may favour internal bleeding. He next gives rules for the removal of retained placenta, or a portion left behind. Ergot is approved of, given as recommended by Dr. Beatty, that is, just as delivery is taking place. The placing the child to the breast is approved of, though, strange to say, the author doubts its power to excite uterine contraction by reflex action. The paper concludes with the treatment of the consequences of hemorrhage; but in these remarks we find nothing worthy of repetition, being such as every well-informed practitioner would adopt.]

Art. 78.—*Puerperal Convulsions.* By Dr. Murphy.

(*Medical Gazette*, Jan. 1849.)

Dr. Murphy, in his Lectures on Midwifery, lays down the following propositions on this subject:

1st. Puerperal convulsions should not be confounded with epilepsy, nor with apoplexy. They agree with the epileptic attack in their phy-

siological, but not in their pathological characters. Apoplexy is an effect of the paroxysms, which may or may not follow from them.

2d. The predisposing causes of puerperal convulsions are either an excess of blood (hyperemia), a deficiency of blood (anemia), or impure blood.

3d. The proximate causes of convulsions are chiefly eccentric causes, being the morbid irritation of the afferent nerves supplying the different vital organs.

4th. *Morbid irritation of the uterus* is the most common proximate cause of puerperal convulsions, the result either of hyperemia or anemia. Hence the division into sthenic or hyperemic convulsions, and asthenic or anemic convulsions. Under the latter head we include, not merely loss of blood, but poverty of blood, and impure blood—because the effect seems to be similar, only differing in degree.

5th. *Morbid irritation of other organs* also causes puerperal convulsions, because, during pregnancy, and at the time of labour, the nervous system is more excitable than at any other time: and hence any organ may easily be rendered morbidly irritable. Puerperal convulsions so caused are much more fatal than the former, because the nervous centre is exposed to a twofold source of irritation—the organ primarily affected, and the uterus, that is secondarily excited.

6th. In the whole of these phenomena we must perceive a beautiful illustration of the reflex nervous function—the peripheral nerves, that supply the affected organ, rapidly communicating their irritation to the spinal system, which, as an excito-motor centre, radiates the irritation over the whole of the voluntary muscles and the muscles of respiration. Even the involuntary muscles, as the uterus and heart, do not escape.

Art. 79.—*Use of Ice to promote Uterine Contraction.*—Drs. Mackale, Skinner, &c., speak highly of the power of ice to reproduce labour-pains when suspended. It is pounded and swallowed freely. Dr. Mackale says: "During two years I have had frequent opportunities of observing its effects, and in no instance have I been disappointed in its action. In cases where labour-pains had been suspended for twelve or twenty-four hours, they have been renewed promptly and efficiently. In cases of inevitable abortion, when the uterine contractions are feeble and inefficient, and hemorrhage considerable, I regard it as invaluable."

Transactions of the American Medical Association.

Art. 80.—*Treatment of Rigidity of the Os Uteri during Labour.*—Dr. Scanzoni, who has carefully examined the conditions of the os and cervix, in the latter months of pregnancy, believes that the constriction, which sometimes declares itself in the first stage of labour, is due to rigidity of the upper orifice of the uterine neck, and not the lower, which is generally sufficiently dilatable. Instead of the treatment usually recommended, viz. bleeding, antimony, belladonna, frictions, &c., he advises a continuous douche of warm water upon the os and cervix, directed by means of an appropriate instrument.

L'Union Médicale, and *Rev. Méd.-Chir.*, Dec. 1848.

SECT. II.—DISEASES OF CHILDREN.

Art. 81.—*On the Continued Fevers of Childhood.* By Dr. West.

(*Medical Gazette*, Aug. 11, 1848.)

In discussing the question of the similarity of infantile fever to the continued fevers of adult age, the author observes as follows:]

If we look closely at the characters of this disease, and compare them, as has been done by MM. Rilliet and Barthez, with those presented by the simple continued fever of the adult, we shall, I think, see so close a correspondence between the two affections as to remove all doubt with reference as to their identity. Both diseases occur independently of any unvarying cause, often independently of any cause which we are able to detect; and both, though generally affecting isolated individuals, have also their seasons of epidemic prevalence, Though varying in severity, so that in some cases confinement to bed for a few days is scarcely necessary, while in other cases the patient scarcely escapes with his life, yet medicine has not been able to cut short the course even of their mildest forms. And, lastly, though the local affections associated with both vary much in different cases, yet in every instance we meet with that assemblage of symptoms which make up our idea of fever. Or if, from the examination of the symptoms during life, we pass to the inquiry into the traces left by the disease on the bodies of those to whom it proves fatal, we shall find still further evidence of the close relation that subsists between the fever of the child and that of the adult. Enlargement, tumefaction, and ulceration of Peyer's glands constitute one of the most frequent morbid appearances in both diseases, and in both, the changes that these glands are found to have undergone are more advanced and more extensive in proportion to their nearness to the ilio-cæcal valve. In both too, the mesenteric glands are enlarged, swollen, of a more or less deep red colour, and manifestly increased in vascularity; while the softened state of the spleen, the gorged condition of the lungs, and the congestion of the membranes of the brain, are appearances common to both diseases. There is, however, no more relation between the severity of the intestinal lesion and the intensity of the symptoms in the fever of the child than in that of the adult; and there is no ground for regarding the disease as the mere effect of the constitution sympathising with a certain local mischief in the former case, which may not be equally alleged with reference to the latter. The symptoms in both "are the expression of the influence of the disease on the whole economy of the disorder which it occasions in the principal functions of the body, and are an essential part of the disease itself, rather than the secondary effects of certain lesions of the bowels.

[The treatment of the different stages of infantile fever meets with the subjoined judicious comments.]

The impaired appetite often renders any other directions about the diet unnecessary, than a caution to the parents or nurse not to coax or tempt the child to take food which it is, and will be probably for some days entirely unable to digest. The heat of skin and the craving thirst are the two most urgent symptoms in the early stages of the

affection. The first of these is generally relieved by the tepid bath at 90° or 92° every morning, and by sponging the surface of the body several times a day with lukewarm water. The desire for cold drinks is often very urgent, and no beverage is half so grateful as cold water to the child. Of this it would, if permitted, take abundant draughts, but it should be explained to the attendants that the thirst is not more effectually relieved by them than by small quantities of fluid, while pain in the abdomen is very likely to be caused by the over-distension of the stomach. The cup given to the child should therefore only contain a dessert- or tablespoonful of water in it, for it irritates the little patient to remove the vessel from its lips unemptied. In the milder forms of the disease, and during the first week, medicine is little needed; but a simple saline may be given, such as the citrate of potass, in a mixture to which small doses of vinum ipecacuanhæ may be added, if, as sometimes happens, the cough be troublesome. If the bowels act with due frequency, and the appearance of the evacuations be not extremely unhealthy, it is well to abstain from the employment of any remedy which might act upon them, for fear of occasioning diarrhœa, which is so apt to supervene in the course of this affection. For the same reason, if an aperient be indicated, drastic purgatives are not to be given, but a moderate dose of castor oil should be administered. Now and then, however, cases are met with, in which the bowels remain confined during a great part of the affection, and in which such purgatives as senna are not only borne, but absolutely necessary. They, however, are purely exceptional cases; and it will generally suffice to give a small dose of the mercury and chalk, night and morning, and during the daytime a small quantity of the tartrate of soda or the sulphate of magnesia, dissolved in some simple saline mixture, every six or eight hours.

The unhealthy state of the evacuations that exist in a large number of cases is generally associated with a disposition to diarrhœa, which becomes a more prominent symptom in the second than it was in the first week of the disorder. Equal parts of the hydrargyrum cum creta and Dover's powder are the best means of relieving both these morbid conditions; the remedy being given either once or twice a day, or more frequently, according to the urgency of the symptoms. The amount of abdominal pain and tenderness must be ascertained every day; and a few leeches must be applied to either iliac region, if the tenderness seem considerable, or if the child appear to suffer much from pain in the abdomen, or if the diarrhœa be severe. If depletion be needed, the application of but a small number of leeches will generally meet the requirements of the case, while copious bleeding is neither useful nor well borne. Even in children of ten years old, I never apply above four or six leeches, and it is very seldom that any occasion arises for repetition of the bleeding. The application of poultices to the abdomen, either of linseed-meal or scalded bran, and their frequent repetition, is a very valuable means of relieving the griping pain which often distresses children, and in most cases it is desirable to make trial of them before having recourse to depletion.

There is but one other class of symptoms likely to occur during the first week of the fever, to the management of which I have not yet

referred; namely, those signs of cerebral disturbance which are sometimes so serious as to call for treatment. The early occurrence of delirium, though it generally implies that the disease will assume a rather serious character, yet does not of itself indicate the necessity for taking blood from the head; but if the child be quiet and generally rational during the daytime, though dull yet not in a state of stupor, while the delirium at night is of a tranquil kind, it will generally suffice to apply cold to the head, and to keep the apartment cool, and absolutely quiet. On the other hand, if there be great restlessness and noisy delirium early in the disease, with heat of head or flushing of the face, local depletion is called for; nor is it less useful in those cases which set in with symptoms that bear a close resemblance to those of hydrocephalus, in which vomiting occurs frequently, and the sense of nausea is abiding, while the child either is constantly making a low moan as if in pain, or is extremely restless, and makes loud complaints of headache.

In mild cases of the disease, that expectant treatment usually appropriate during its early stages may be continued throughout its course; great caution being exercised as the child begins to improve, to prevent its committing any error in diet. When severe, however, the second week often brings with it a train of symptoms that require many modifications in the plan of treatment. The vital powers need to be supported, and the nervous system requires to be tranquillized; and this is to be attempted by means similar to those which we should employ in the management of fever in the adult. The mere diluents which were given during the previous course of the fever must now be exchanged for beef- or veal-tea or chicken-broth, unless the existence of severe diarrhœa contraindicates their administration. In that case, which, however, does not very often occur, we must substitute arrow-root, milk, and isinglass for animal broths. In a large proportion of cases, nutritious food is all that will be required, but wine is sometimes as essential as in the fevers of the adult; and the indications for giving it are much the same in patients of all ages. Even though wine be not necessary, I generally give some form of stimulant during the second and third weeks of the affection. The prescription which I usually follow is one much praised under such circumstances by Dr. Stieglitz, of St. Petersburgh. For a child of five years old, it is four minims of dilute hydrochloric acid, eight of the compound spirit of sulphuric ether, and three drachms of camphor mixture, every six hours. It seldom disorders the bowels, if they be not much disturbed at the time of commencing its administration; while a small dose of Dover's powder, as a grain or a grain and a half at bedtime, is doubly useful, both in checking tendency to diarrhœa and in procuring sleep for the child, who, without it, would probably be watchful and delirious all night long. So long as any severe abdominal symptoms are present, I abstain from the use of the acid mixture; but give the mercury and chalk, with Dover's powder, every four or six hours, to which I occasionally add an opiate enema at bedtime; and support the strength by food and wine as may be necessary.

The only complication that is apt to be troublesome is the bronchitis. Usually, however, the cough to which this gives rise is rather an annoy-

ing than a dangerous symptom; and it is in general more harassing at the commencement of the affection, and again when convalescence is beginning, than during the time when the graver symptoms are present. A little ipecacuanha wine, nitrous ether, and paregoric will usually relieve it, to which it may occasionally be expedient to add the application of a mustard poultice to the chest.

Art. 82.—*On Typhoid Fever in Childhood.* By Dr. Wilshire.

(*Medical Times*, June 10, 1848.)

[The following extract is but a small portion of a lecture on the subject of fever in general as it appears in infancy, by Dr. Wilshire; the entire subject is handled in a masterly manner, and deserves attentive perusal. After remarking that typhoid fever is not common below the age of ten years, but is more frequent after that age and up to fourteen years, the author thus proceeds:]

I shall suppose you called to see a patient about thirteen years old; you find him in bed; you are told by the mother that for some days he has been complaining of great lassitude, pain of the head, loss of appetite, and increased thirst. On the morning before, his mother attempting to get him up, he refused to rise; that he lay in bed complaining greatly of headache, often coughing, and asking only for drink. You now find him on his side, half dozing, not inclined to move or attend much to your inquiries. He especially avoids the light on raising himself up in bed, or if he moves and looks up at you he quickly falls back again, buries his head in the pillow, and lies as before, careless of all around. You observe that the tongue is coated with a thick yellowish-brown mucoid fur, clammy rather, but you will think inclined soon to become dry. The skin is hot; the lips dry, rather red, and there is some cough. He complains of his head, and of his belly, when you press upon it. The bowels are described to be rather loose, and there is tendency to vomit. If you inquire as to the existence of remissions or paroxysmal exacerbations, the mother may, perhaps, tell you he is rather worse towards night, but she will generally reply, "He lays like this all day, sir."

The next day or the day after you will find most of these symptoms in a more exaggerated form. The fur upon the tongue is less mucoid; the tongue is getting darker and drier; the lips less moist, and more cracked. The bowels are very frequently acted upon; there is vomiting; the cough is much more troublesome, and the patient is said to have moaned much, or wandered or talked nonsense in the night. There is great prostration of strength; he lies in bed regardless of everything; the legs are placed straight down now, instead of the knees being drawn upwards towards the chin.

Thus he may remain for a day or so longer. In this interval, however, important complications may sometimes be seen; epistaxis may come on, hemoptysis, even pneumonia, greatly increased diarrhœa, or enteritic inflammation; or no such occurrences may happen, but gradually the other symptoms will decline, the disorder diminish in intensity, the child by degrees getting well.

But frequently another stage is passed through. You find the head-

ache disappear, but the patient all at once seems to have become remarkably emaciated, and lays more heavy, and notices less than before, and now nearly flat upon his back. There is some amount of stupor; you must push him or pull him to arouse him, when he just opens his eyes, and perhaps, if urged to do so, puts out his tongue, and then falls to sleep again. You find the tongue hard, dry, and very dark towards its base; the lips are thin, dry, and scabbed; the teeth have dark sordes at their gingival extremities; the skin is dry and harsh; the patient is deaf; and the dejections frequent, watery, and perhaps passed, as is the urine, without consciousness.

The patient may thus continue for a day or two, now and then showing a slight improvement; or, on the other hand, pneumonia of a very insidious form may carry him off, or he may pass into a state of coma, sores forming upon the sacrum or hips, and die in a short time.

But this, fortunately, is not, so far as my experience goes, usually the case; on the contrary, before these latter and like untoward events make their appearance, the disposition for the fever to abate is manifested by a gradual but certain amendment of the signs. The stupor disappears, the countenance assumes more expression, the patient becomes observing, and the sense of audition returns. The bowels are less relaxed, the tongue moister, the skin becomes less dry and harsh, and the patient is able to turn over whilst in bed. Soon is observed very great amelioration of the cough, and the tongue now presents a far more natural appearance; the patient speaks, will ask for some ale, perhaps, and his face has its natural aspect. Return now to health is often rapid in the extreme; muscular strength is renewed remarkably; the appetite becomes great, and, in fine, the patient recovers so quickly that his rapid convalescence forms not by any means the least interesting feature in the case.

In other instances, although recovery ensues, the progress towards it is by no means so quick or free from unpleasant contingencies as I have just represented. The change from the severe symptoms of the third stage is but very gradual and slow indeed, and the patient seems to *hover* between the two events, which gives rise to much apprehension. At this time, however, just when we think the fever has really "turned" and favorably, the patient, in the extreme of emaciation, has a series of abscesses break out in different parts of the body, and in a few days more time is thrown back with suppurations and discharging sores, accompanied with much irritative and symptomatic fever. I have been often vexed with this disagreeable interlude to a case of typhoid fever. Sometimes a large abscess will occur under the scalp, or the glands in the groin, or neck, or armpit will inflame and suppurate, or there will be collections of pus in other parts of the body. I remember a little girl, of between thirteen and fourteen years of age, whose recovery was thus retarded for four or five months; and often during this period I thought she would not have survived under the discharge and the irritative fever. She got better, however, but arose from her bed a mere wreck. Sometimes, in the course of rather a mild form of the fever, collections of matter will form, and the patient soon get well from that time. But here they are but few and slight, and they seem to be *critical*. After these abscesses are entirely recovered

from, the patient may be left with otorrhœa, and after that with permanent deafness.

Before concluding what I have to say on the symptomatology of the fever we are discussing, there are one or two points I must just touch upon. The first is with respect to the *eruption*, which is described by some of the French pathologists as being "almost constant in the child, especially frequent on the back or on the limbs; whilst, if searched for on the chest or on the abdomen, we may often fail to recognise its existence." (Fabre.) This does not answer to my experience, as I generally fail to observe it anywhere. Now and then my attention is directed to small punctations, apparently an eruption, on the arms; but whether these answer to the "*taches roses lenticulaires*" of the French pathologists I have considerable misgivings; but you must recollect I have had no experience whatever amongst children in regard to the maculated fever of Ireland, Scotland, and occasionally of this country. I refer simply to the common typhoid fever, as I see it frequently amongst children here.

The next symptom I may notice, and which I should say, from my own experience, is *frequently* present, is what the French call *gargouillement*—a sort of gurgling sound heard when the ear is applied over the right iliac fossa. This sound is caused by the movements of gases and fluid within the intestinal canal. Now, there are many who place great stress upon this sign, and consider it as diagnostic of typhoid fever. They maintain that it is unfrequent in disorders of the intestinal canal, unless the accompanying fever is of a typhoid character. Rilliet says: "One of the most unfrequent symptoms of enterocolitis is gargouillement—a phenomenon so common in typhoid fever that, in the child at least, it will put us on the road to correct diagnosis, when we are in doubts as to the latter." Barthez and Rilliet have observed it in one half of the cases of fever which have come before them. I doubt not this, but I much doubt its value as a differential or essential characteristic of the malady, and believe that it may be much oftener heard in other affections than the continental observers admit it to be.

Other observers have considered the catarrh and the bronchitis—undoubtedly very frequent complications of the fever—as almost necessary to its existence. Fabre asserts that a respiratory affection is wanting only in the most simple cases; M. Taupin, that, out of 121 cases, it was absent but four times; and M. Barrier, that in three cases only out of twenty-four did he fail to observe it.

More or less importance has been attached to *parotitis* by different observers, but the more eminent of the continental authorities agree in believing that, whilst it is uncommon in adults, it is still more so in children. In more than 100 cases observed by Rilliet and Barthez, it was seen but once—in a boy nine years old, and who died on the twentieth day. M. Guersant remarks: "It has been asserted erroneously, in my opinion, that *parotitis*, when it occurs, is the *cause* of the gravity of the disease, it being far more rational to conclude that it is the *result* of the gravity of the affection." I have not seen *parotitis* as an intercurrent affection of the typhoid fever I am now speaking of.

With respect to the usual duration of the malady, I may remark

that it varies much according to the severity of the affection, and also as to whether we include in it any portion of the earlier stages of recovery. Of course recovery from a disease cannot be the disease; but yet it is very difficult at first to mark the slight and gradual variations from the one into the other. In a mild case, the fever may be said to last about fifteen days; in a bad one, with complications, thirty. After the former, too, restitution to health and vigour may be most rapid, whilst in the latter, sometimes two or three months are necessary before such events can take place. With respect to liability of the sexes, I may remark that—

M. Taupin states that out of 121 cases, 86 were boys, and 35 girls; Rilliet and Barthez, out of 111 cases, note 80 boys and 31 girls. M. Taupin attributes the difference to the girls of the lower classes being better taken care of than the boys are by their parents. The consequence is that their diseases are less severe, and they are not so often brought to hospitals as the boys are. But this is scarcely sufficient to account for the great difference we find to exist, at any rate in the proportion of the sexes attacked by the *fièvre typhoide* of the continent. In the Fifth Report of the Registrar-General I find that 821 males are said to have died of *typhus*, under fifteen years of age, in twenty-four town districts; and that 853 females did so. Here the females have the higher ratio; but, inasmuch as no less than 39 females and 46 males are said to have died in the first year of life from *typhus*, no dependence I fear can be placed as to the real nature of the malady of which many of the so-called typhus cases actually were constituted. Even the French writers, who admit of the occurrence of their *fièvre typhoide* at an early age, do so in such reserved language as the following:—"All periods of childhood are not equally liable to typhoid fever: it is extremely rare in the first year; still rare, but gradually becoming less so, up to the eighth or ninth year; but frequent enough above that age." (Fabre, Biblioth. Méd. Prac.) "Do there exist in the history of our science, cases of typhoid occurring in children below two years of age?" (Rilliet and Barthez.) Rilliet afterwards notes a satisfactory case of his own, in a child of seven months old; and a few others are recorded by M. Charcelay, as observed "*chez des nouveaux-nés.*"

Of course we cannot come to anything truly satisfactory upon many of these points, because of the confusion in which the pathology of *typhus* and *typhoid* fever as yet remain. I cannot better illustrate this fact than by quoting to you the reply of the Dublin writer I before mentioned to M. Rouchoux's arguments: "The reason why typhoid fever is said never to occur in children is, that the French pathologist is apt to deny the existence of the disease, unless he has an opportunity of seeing the diseased bowels, which—as children, comparatively speaking, seldom die of fever—he has but little opportunity of doing." The objection is completely reversed by the fact, that cases are on record in which the rose-coloured spots of fever were visible, even at birth. On the other hand, the true typhus of Ireland is equally rare among children with the typhoid fever of France, and equally uncommon among aged persons, since of 11,209 cases admitted into the Belfast Hospital, 301 only were under six years, and 171 only above sixty. (Half-Yearly Abstract, Vol. II, p. 200.)

Art. 83.—*On Eclampsia Nutans, or "Salaam" Convulsion of Infancy.* By William Newnham, Esq.

(*British Record of Obstetric Medicine*, March 1849.)

[The disease which the author describes in the following pages is but little known, few, if any, cases being recorded besides the four which are appended to this essay. It appears to be one of fearful importance also, two of the four cases having ended in idiotcy. The pathognomonic symptom is "a peculiar bowing forward of the head," which is repeated with greater or less rapidity, sometimes as many as a hundred times. Our space will not allow of the detail of all the cases brought forward by the author; but the characteristics of the affection are sufficiently seen in the following.]

A child, æt. 16 months, was observed, on January 1st, 1839, to have a peculiar heavy look about the eyes, which was supposed to depend on the stomach, and was treated by alteratives. The peculiar nodding of the head occurred thrice on this day; but rapidly increased in number and severity. The forcible bowing of the body on one occasion took place as many as one hundred and forty times in the minute, and were apparently accompanied by considerable suffering. They were followed by exhaustion and disposition to sleep.

About the middle of March the right arm and leg were observed to lose power, and ultimately became paralytic. By the middle of April she had ceased to be able to crawl, and her countenance indicated cerebral distress. This increased till the end of May, at which time she often awoke with violent screaming and spasm of the whole body, the head being first thrown back, and then bowed violently to the feet, which were also drawn upwards. The child then fell into uneasy slumbers. There was much sluggishness of the bowels. On the 27th of May she fell into a comatose sleep, which lasted some hours. This was repeated on the 29th. From this date improvement commenced, and the attacks were suspended till the 21st of June. After this there were slight bowings, and on the 9th July they increased in severity for three weeks, when they ceased.

During this whole time she made no intellectual progress, and when three years old was as backward as a child of two. At a more advanced age the same was observed. She appeared a retiring girl, of a capacity below her age.

The treatment was at first tonic. Zinc was given, under the impression the disease was allied to chorea. Subsequently the bichloride of mercury was given in 1-16 gr. doses, and aperients. Latterly the mercury was omitted, and at the time of her ultimate improvement, no medicine was given to which it could be attributed.

In his commentary on the above and three other cases, Mr. Newnham remarks, that the disease appears to be spinal in its origin, though cerebral symptoms are superadded subsequently. The effect on the mind is marked and invariable, though not to the same extent in all cases. Of the four cases recorded, one only recovered, and that not perfectly. In addition to the induction of mental imbecility, paralysis has been a consequence, either in the form of paraplegia or hemiplegia. It is to be remarked, that in each case the severe attacks of "bowing"

have been preceded by sleep, and the severity seemed in proportion to the depth and duration of the sleep.

The author notices an evident alliance of this disease with epilepsy; tetanoid symptoms also occur during its progress. Speaking of the causes, he looks upon irritation of the pneumogastric nerve as a possible, but not the essential cause. In the same category of unproven causes he would place irritation of the spinal nerves by the presence of worms.

The essential nature of the disease is considered by Mr. Newnham to be inflammatory action of a low or strumous character, commencing in the membranes of the medulla oblongata, and extending to the membranes covering the base of the brain. This inflammation he conceives to be followed by exudations of lymph and serum, the pressure of which produces paralysis. The nutrition of the brain is also interrupted.

The author's views of the treatment are based on this view of the pathology of the disease. He would avoid depletion, subduing high action, if necessary, by antimony. He would then give alterative doses of hydr. c. creta, and the iodide of potass with excess of potass or sarsaparilla; if the child were anæmic, he would add some form of iron. He approves of some form of counter-irritation, and prefers the seton. Among auxiliary measures, he refers to lancing the gums, the avoidance of all mental excitement, the warm bath, keeping the head free from covering, causing the child to sleep on a hard pillow, and taking care that the child be not rocked to sleep previously to being placed in bed.

The diet should be light and digestible, but at the same time nutritious. The meals neither too close together nor too far apart. Acidity of the stomach is to be avoided. Air and exercise are also mentioned as important adjuvants.

Art. 84.—*Treatment of Croup by the Application of Nitrate of Silver to the Interior of the Larynx.* By Dr. Bryan.

(*Southern Medical and Surgical Journal*, June 1848.)

This author narrates a case confirmatory of the practice of treating diseases of the larynx, advocated by Dr. Green (see Abstract, Vol. VI), which consists in applying a strong solution of nitrate of silver to the interior of the glottis by means of a piece of sponge attached to a whalebone handle. He was called to a child, æt. 14 months, labouring under membranous croup, which, as it was losing ground under the ordinary treatment, he resolved to treat by the above means. The first application was of a solution of the strength of forty grains to the ounce of water. The bent handle of a spoon served as a spatula to depress and draw the tongue forward. The epiglottis was distinctly seen, and the sponge cut in a conical form, and firmly fastened to a properly curved piece of whalebone, was rapidly passed behind it, and into the larynx. A temporary spasm of the glottis followed, and a free discharge of membranous and mucous fluid took place. This was succeeded by an improvement in respiration. The pulse was 130 per minute, and thready.

9½ p. m.—Respiration has improved somewhat; a free discharge of mucus by vomiting had taken place since the first application. The second application was followed by a copious flow of flaky and stringy mucus, white almost as milk; some blood from the nose was mixed with the discharge; epistaxis, however, has existed now and then, ever since the disease began.

22d. 8½ a. m.—The child has passed a tolerably easy night; free bilious evacuations from the bowels, the effect of two grains of calomel administered every two hours, since yesterday morning. Respiration now easy; the head is not thrown back as before; the child is in a quiet sleep; pulse 95, and regular; drinks cold water freely since the first application of the nitrate.

Third application, sixty grains to the ounce, into the larynx, followed by less spasm, very little irritation, and by free expectoration. Continue calomel, two grains every four hours.

7 p. m.—Three or four stools have been passed during the day. The child lays languidly on the pillow, with its chin raised, but quiet. The respiration dry and difficult. The first attempt at an application this evening failed, on account of the restlessness of the child, and the spasm which followed was great, and continued for several minutes. In the second attempt I succeeded in passing the instrument far down into the larynx, and brought up with it a quantity of tenacious mucus. The withdrawal of the instrument was followed immediately by the discharge of a large quantity of thick, membranous, tenacious, stringy mucus, somewhat streaked and yellowish, which resulted in the complete relief of the child, who laid back his head, and went to sleep in a few seconds.

23d. 8½ a. m.—The respiration of our patient is comparatively easy; slept well last night; has had four bilious stools. He is so much relieved, that we resolve not to apply the salt at present, but to hold ourselves in readiness to make the application, should it be demanded during the day.

6 o'clock p. m.—The child is sitting on his mother's lap, playing with his toys. Respiration slightly stridulous; has taken bread and milk; had three stools during the day, and has slept comfortably. The throat, as far as can be seen, is free from the diphtheritic deposit which at the first and second visits had been very evident, covering the fauces and soft palate with a milk-coloured membrane. Made no application this time, but directed to continue calomel, one half grain every four hours, with one grain of quinine in syrup.

24th.—We met again, at 9¼ o'clock, a. m., and found the child lying comparatively easy in the cradle; but little sound in the respiration, which was but slightly impeded; had passed a comfortable night, slept well, taken nourishment, and passed three stools; no application; calomel to be continued; consultation to cease. Dr. Beasly informs me that the child got perfectly well, without a bad symptom, and that he thinks that the application was the means of saving its life.

It will be seen that none of the usual remedies, such as bleeding, emetics, cathartics, tobacco, &c. &c., with the exception of a few grains of calomel, were used in this case.

ART. 85.—*Cases of Membranous Laryngitis, in which Tracheotomy was successful in the advanced stage of the disease.* By Dr. C. D. MEIGS.

(*American Journal of the Medical Sciences*, Oct. 1848.)

A child, 4 years of age, becoming affected with difficult and noisy respiration, was placed under the care of a homœopathic practitioner; the parents having lost already a child from croup, recognised in this the same symptoms as were observed in the former case, and suggested to the medical attendant, that the child was labouring under that disease, but this he declared was not the case, but rather thought that the attack would turn out to be one of measles. The child, however, grew worse and worse—no eruption appeared upon the skin, and at the end of two weeks, the respiration having become increased in difficulty, and attended with a distinct croupy sound, while the voice of the child was nearly extinct, the parents became alarmed, and sent for Dr. Meigs. His son, Dr. J. F. Meigs, immediately saw the patient, and found it in an advanced stage of genuine membranous croup, attended with symptoms of the most violent character; an extensive deposition of membranous matter appeared to have taken place, and the case was looked upon as almost hopeless—with the view, however, of affording, if possible, some relief to the extreme difficulty of breathing, the doctor directed the application of five or six leeches to the throat on each side of the trachea. Dr. C. D. Meigs now saw the child, and considered it to be in the most imminent danger. The croupal symptoms were intense. Upon auscultation, not the slightest respiratory murmur could be detected in any part of the chest, giving the idea of an individual labouring under complete hepatization of both lungs. The air passed into the lungs with the greatest difficulty, the respiratory effort being prolonged to an extent beyond what the doctor recollects to have ever before witnessed. The child was extremely restless, its head was thrown back upon the spine, and every moment strangulation seemed imminent. A half ounce of powdered alum was directed, and one drachm of it given to the child at intervals of twenty minutes, until emesis was produced, which did not occur until after the fourth dose. This was rather an uncommon occurrence, vomiting being generally produced by a single dose of the alum; it evidently indicated a torpid state of the nervous mass, the result of the great change produced in the blood, in consequence of the imperfect performance of the respiratory function. No nausea or prostration followed the action of the emetic.

Early the next morning found the child labouring under the most distressing difficulty of respiration; the surface, and particularly the face, lips, and tongue, were of a blue colour, and nearly all the symptoms of a state of asphyxia were present. Dr. Meigs considered that death was inevitable, but still, the operation of tracheotomy, though a forlorn hope, presented itself as the only possible means of relief. This was stated to the parents, who consented that it should be tried; accordingly, at eleven o'clock, the operation was performed by Dr. Pancoast. After laying bare the trachea, he divided the second, third, and fourth cartilaginous rings; immediately upon open-

ing the trachea, a discharge took place of mucus, mixed with blood and portions of plastic lymph. In forty seconds, the child breathed with great freedom. Instead of inserting a tube in the usual manner, through the opening into the trachea, Dr. Pancoast secured the open state of this, by cutting from the trachea an elliptical portion of cartilage, thus leaving an oval opening into the tube somewhat larger than that of the two nostrils; while the edges of the incision through the soft parts were kept asunder by a leaden wire, which passing around the neck had the hooked ends of its two free extremities inserted on each side of the wound. The next day the child was up and running about. In a few days, the edges of the incision in the neck were brought together, the wound rapidly healed, and the child, within a surprisingly short period, recovered perfectly, without a single disagreeable symptom occurring.

Art. 86.—*On the Intestinal Hemorrhages of Newborn Children.* By Dr. Rilliet.

(*Gazette Médicale*, Dec. 30, 1848.)

[We had commenced the translation of the following memoir from its original source, when we found that it had already been accomplished in the 'London Journal of Medicine.' Having convinced ourselves of the general accuracy of this translation by a comparison with the French, we have been happy to avail ourselves of it; thus abbreviating, in this particular instance, a portion of our labours. The essay commences with the literary history of the affection; after which, the cases already placed on record are made subservient to the following general observations.]

1. *Causes.*—The etiology of infantile melæna is still involved in obscurity. The subject may be treated of under the following heads:

1. *Age and sex.*—It is essentially a disease of the early days of life. Generally, those affected are not more than from one to four days old; but in a case mentioned by Gairdner, it did not come on till the eleventh day; and in another recorded by Ellinger, it did not occur till about the end of the fifteenth or twentieth week. From the cases which I have consulted not being all complete, the figures in the following tables exhibit variations:

Age.	No. of individuals.	Age.	No. of individuals.
12 to 30 hours	4	4 days	2
1 day	5	6 days	2
56 hours	1	11 days	1
2 days	2	15 weeks	1
3 days	1	20 weeks	1
Total	20.		

Billard, in fifteen cases of passive hemorrhage, observed:

Age.	No. of individuals.
1 to 6 days	8
6 to 8 days	4
10 to 18 days	3

It appears that the greater proportion of cases occurred among male infants.

2. *Hereditary tendency.*—From an analysis of cases made by Dr. Rahn-Escher, he has been led to attach much importance to this cause. He found that the mothers had been subject to irritation of the glands, derangement of the abdominal circulation, and disorder of the function of digestion, both during the existence and non-existence of pregnancy. It must be recollected, however, that these maternal conditions are very common, and that, nevertheless, malæna is extremely rare in newly-born infants. Hereditary influence can be more readily admitted, where the parents have been subject to hemorrhage (as in cases quoted by Hesse), or where several children of the same family have been simultaneously affected, as I have seen, or successively, as Dr. Rahn-Escher has observed.

3. *The circumstances attendant on the delivery, the state of the infant at birth, and its treatment immediately afterwards—Do they afford a more satisfactory explanation of the hemorrhage?*—It has been alleged that long delay of the infant in a narrow pelvis, protracted labour, and difficult parturition produce melæna. By examining the imperfect cases which we possess, I have ascertained that the number of difficult somewhat exceeds that of natural labours; but in this there is nothing remarkable, as most of the mothers were primiparous. Besides, the difference is so inconsiderable as hardly to deserve to be taken account of. Kiwisch is the only author who, in reporting his cases, notices premature ligature of the cord as an active cause. In two of his four cases, the cord was prematurely tied; and in a third, symptoms of cyanosis obliged the midwife to cut the ligature. The greater number of Billard's fifteen cases were remarkable for plethora of the body, and a congested state of the integuments. The observations of authors, as well as our own, do not sanction plethora being regarded as a cause of melæna. Out of sixteen infants, eight were delicate and feeble, seven healthy, and only one asphyxiated.

4. *Rupture of a vessel* Brebis considers among the causes: but his hypothesis is entirely contradicted by pathological anatomy. Bêhler, Billard, Rahn-Escher, Gendrin, Kiwisch, Hoffmann, Helmbrecht, and Dorington state, that in opening the intestinal canal, they have specially noted the absence of any grave lesion of the vessels. In some cases, nothing has been observed beyond the presence of extravasated blood in the stomach and large intestines, the mucous membrane being not more injected than it naturally is in newly-born infants (Gendrin, Kiwisch). In other cases, this membrane presented no lesions whatever; but the large abdominal vessels, the liver, spleen, heart, lungs, and cerebro-spinal system, were gorged with blood (Billard). The dilatation of the mesenteric and mesocolic veins—in some places to the size of a crow-quill—has been mentioned by Bêhler. Helmbrecht has observed dilatation of the capillaries, with thinning of the mucous membrane. Dorington and Rahn-Escher have observed ramollissement, inequality, and redness of the mucous membrane of the large intestine, without extravasation of blood.

The true predisposing causes ought to be sought for—

First, in the injection of the intestinal tube, a state which is normal in the newly-born infant, as has been shown by Billard. It is easy to understand how an exaggeration of this condition, arising from atony

of the vessels, or an impediment to the abdominal circulation, produced by an arrest of blood in the vena portæ, or by the increased volume of the liver and spleen, should, in a high degree, predispose to intestinal hemorrhage.

Second, in the difficulty with which respiration becomes established. The blood, not being able to flow to the lungs, expands them but imperfectly, engorges all the other organs, and especially the intestines, which, being already in a state of congestion, are unable to support this new tax, and allow the blood to be emitted from the vessels into the cavity of the bowel.

II. *Description of the Disease, and Cases.*—I cannot give a better account of the disease, than by detailing the two cases which occurred in my own practice. They are more complete than most of those recorded by authors.

Case I.—On the 30th of January, 1846, I was sent for (at 1 p.m.) to see a newly-born male infant, said to be in very great danger. The following particulars were communicated to me by the nurse and medical attendant, M. Maunoir:—The infant (a twin) had been born at 4 a.m. Labour had not been very difficult, but sufficiently so for M. Maunoir to employ the forceps. The placenta had separated. The liquor amnii had been in small quantity. The umbilical cord presented nothing remarkable: it had been tied at the usual time, and in the ordinary manner. The infant was of the full time, not very large, but well proportioned, not plethoric, very lively, crying forcibly. All the functions appeared natural; the meconium had been expelled some hours after birth, after half a teaspoonful of castor oil. The child then had some rest, after which he sucked with avidity: nothing, in fact, could lead one to suppose that anything untoward had happened, till the nurse, in changing his linen, observed that some remains of the meconium had been expelled, mingled with a certain quantity of blood. Two hours later he passed a second stool, abounding with pure blood, liquid, and mixed with clots; and at one o'clock, when I was sent for, he had a third bloody motion. When I examined the little patient, he was deadly pale. His pulse was imperceptible; his legs and arms were cold; his eyes were habitually closed, as was likewise his mouth. He neither had the wish nor the ability to swallow, but retained the power of moving and crying. The abdomen was soft, and not swollen, and pressure on it did not seem to occasion pain. He had no vomiting. I caused compresses, soaked in cold vinegar, to be applied to the abdomen, directing, at the same time, the extremities to be wrapped up in hot flannels. I prescribed two clysters, containing twelve grains (nearly ten grains of English apothecaries' weight) of the extract of rhatany.

They were almost instantly returned, accompanied by a very considerable quantity of blood. At four in the afternoon, the infant continued in the same state, when M. Maunoir and I prescribed compresses, soaked in a strong decoction of rhatany (two ounces to the pound), and clysters, with twelve grains of the extract. Like the former, they were almost immediately rejected, and followed by a copious discharge of fluid and clotted blood. He had the sixth bloody stool about six in the evening. We were now satisfied with simply

applying the compresses. The pulse rose to 120; the infant had slight trembling of the hands, and oscillation of the globes of the eyes, but nothing which could be properly called convulsions. The abdomen was not tympanitic. From 10 p.m. to eight o'clock the next morning, he was induced to take from eight to ten teaspoonfuls of cold milk, which remained on the stomach; he was then put to the breast. He seized the nipple easily; the pulse was regular, and of fair strength. At mid-day, he passed two scanty stools of a green colour, and destitute of blood. From this time improvement was progressive.

No appreciable cause, external or internal, hereditary or acquired, anterior, concomitant, or posterior to parturition, can be assigned as the cause of the invasion of the disease.

Case II.—The first child was in an alarming condition at six o'clock in the evening, when I was sent for to see the second, who was vomiting blood, and who, immediately after, passed several large stools of liquid blood, mixed with clots. I ordered for him clysters of rhatany; but, as in the case of his brother, they returned, being followed by copious bloody stools. I rested satisfied with applying to the belly compresses, soaked in a cold decoction of rhatany, and wrapping up the inferior extremities in flannels saturated with a hot aromatic infusion. The same general symptoms presented themselves as in the first case: paleness, coldness of surface, smallness of pulse, trembling of the limbs and trunk, and oscillation of the eyes, and an absence of abdominal distension. The bloody stools recurred during the night, but in diminished quantity. At one o'clock he was in a worse condition than his brother; the pulse was lower, being only 112; there was great drowsiness. In the morning he swallowed some spoonfuls of milk, but did not suck well. He was observed to be very lean; in this respect resembling his brother. On the 1st of February, at 9 a.m., I made the following report:—From yesterday to one o'clock this morning, he has only had two small bloody evacuations, the last being between five and six o'clock. As yet, he has had no normal stool; he has taken the breast, on several occasions, with sufficient eagerness; the pulse is 120; the animal heat is everywhere sufficient; and nothing particular can be observed in the other functions. During the day he began to have yellow stools, which continued on the following day, on which he took the breast with avidity. On the 2d of February the pulse was 104, and the visage had improved. A cure was accomplished as promptly and as completely as in the case of his brother.

The symptoms and progress of the disease in the twins presented great similarity. The only difference consisted in this—that the elder had intestinal hemorrhage only, and that of very short duration; while in the second it was longer, and gastric as well as intestinal. In spite of the abundance of the sanguineous discharge, the celerity with which the infants became re-established was remarkable; and the quickness with which the gastro-intestinal mucous membrane resumed its natural functions was very striking. Twenty-four hours had not elapsed till digestion, in the elder, was completely re-established; a fresh proof that the affection is neither the result of the rupture of a vessel, nor

of any serious alteration of the mucous membrane. The prompt restoration of the assimilative function points out to the practitioner the impropriety of allowing the infant to be long without nutriment—a point which, if neglected, might cause the little patients to perish from syncope or inanition.

The recovery of the twins was complete and satisfactory; they had no relapse. A paleness certainly remained for a long time, as an evidence of the excessive hemorrhage.

III. *Symptoms.*—The precursory symptoms are thus described by Dr. Rahn-Escher:—An infant, on the day of its birth, slept almost continually; he changed his colour frequently; was seized with convulsions of the limbs and muscles of the face; deglutition was difficult, and often excited nausea. On the following day, hemorrhage set in. In another instance, slight agitation expelled the colour from the whole body, but especiclly from the face; and, beyond this, there were no symptoms of approaching disorder. Another infant was seized, four days after birth, with yellow watery stools, convulsions, paleness of countenance, and great prostration of the vital powers; respiration was spasmodic; the abdomen was very slightly tympanitic, but without heat or tension; he appeared to have a little pain, especially before each evacuation. The bleeding showed itself upon the evening of the same day. When hemorrhage has once set in, it is almost invariably very abundant. The infants may be said to swim in blood; their linen is soaked in it; the stools follow at near intervals, and contain a great quantity of blood, which is frequently well coloured, and rich in crassamentum, and sometimes liquid, or at other times mixed with numerous large clots. The first stools may be composed of a mixture of meconium and blood; but those which follow, almost always consist of pure blood. Hematemesis is rarer than hemorrhage; but perhaps it is also more considerable: children have had from eight to twelve attacks of vomiting of blood. Etlinger quotes the case of a little patient who passed more than a pound of blood in vomiting and in stools. Though the hemorrhage is generally abundant from the commencement, yet sometimes, for one or two days, simple striæ and stains of blood are seen in the linen. Vomiting, along with bloody stools, is a little more frequent than intestinal hemorrhage; the former being in the proportion of 8, and the other of 7 to 15. In the cases which I have perused, hematemesis never existed alone. Sometimes it was more abundant than intestinal hemorrhage, but it always accompanied it. Hesse gives two cases in which there was only hematemesis.

A large and prolonged loss of blood, in a being so fragile as the newly-born infant, cannot take place without the whole system being profoundly involved. At the moment when the hemorrhage takes place, the infant becomes deadly pale. The pallid hue is accompanied by coldness of the extremities, debility, loss of plumpness, extreme smallness of pulse, inequality of respiration, and occasionally convulsions. There are almost no local symptoms, excepting inability to suck; there is nothing remarkable in the state of the mouth or abdomen, the latter being neither painful nor distended.

Dr. Rahn-Escher has insisted much upon another series of sym-

ptoms, the consequence of enormous loss of blood. The subjects of the cases collected by him remained lean, pale, bloated, weak, flabby, very prostrate, affected either with diarrhœa or constipation, and subject to convulsions. One had symptoms of rachitis; another sank from tabes mesenterica and hydrocephalus, at the age of one; and a third, when one year old, was not re-established, still preserving a deadly paleness.

IV. *Prognosis.*—In analysing the cases of authors, I have satisfied myself that perfect recovery was more frequent than any other result. The following figures throw some light upon the measure of seriousness of this disease. It is to be observed, that the cases of Billard are not embraced in this *résumé.*

In twenty-three cases, in which mention is made of the termination of the disease, the issue was good in twelve and bad in eleven. Nine of the first class of infants were completely cured; the three other cases lapsed into cachexia. Of the eleven which died, death took place rapidly in nine, and slowly in two. Hesse maintains that, in certain cases, the hemorrhage may be considered as the salutary crisis of a plethoric condition. He believes that the melæna of infants is not more serious than the melæna of adults, an opinion in which I cannot concur.

V. *Diagnosis.*—The diagnosis is not always so very simple as might be imagined. The hemorrhage may be internal; in which case it is only by studying the general symptoms, that one can make out the nature of the disease. Sudden paleness, smallness of pulse, and debility may lead us to suspect that hemorrhage has taken place; but there is nothing to prove that the bleeding is from the intestines. On the other hand, when the hemorrhage is external, it cannot always be traced to the gastro-intestinal canal. Hesse has treated this subject very minutely; and we cannot do better than quote, almost textually, his description. He speaks of two kinds of hemorrhage—the one true, and the other false; viz. *hematemesis et melæna vera*, and *hematemesis et melæna spuria.* The first of these is that which we have described; in the second, the blood comes from the supra-diaphragmatic portion of the alimentary canal. In the latter, the accumulation of blood in the stomach or intestine may be the result of different causes—viz. 1st, Operations on the mouth, the nose, or the pharynx, such as the operation for hare-lip, or division of the frænum of the tongue, when performed by inexperienced persons. 2d. Spontaneous hemorrhage from the mouth, pharynx, nasal fossæ, bronchial tubes, or lungs. All these kinds of hemorrhages, with the exception of epistaxis, are very rare in early infancy; but, according to Brebis and Vogel, they may be the result of compression of the neck during difficult labour. 3d. Swallowing of blood by the infant during birth. This cause was noticed by Burgel, an old observer. Schmitt makes a similar remark. Stellwag has seen a newborn infant (whose mother had had hemorrhage during its birth), with blood not only in the mouth, but also in the intestine, mingled with the meconium. Finally, the blood may proceed from the mammæ of the mother or nurse, when they contain little milk, and the infant sucks with avidity; or the blood may be drawn from excoriations of the mammæ.

The diagnosis, though very simple when the blood in the stomach is the result of a surgical operation, or of sucking, is sometimes more difficult when it proceeds from spontaneous hemorrhage from the nasal fossæ, or the supra-diaphragmatic part of the alimentary canal; but in newborn infants this is an extremely rare form of hemorrhage. When there is doubt, one of the best means of distinguishing true from false melæna, is to study thoroughly the concomitant and consecutive symptoms. In the false, they may be said to be absent, or advantage may seem to arise from the hemorrhage; whereas, in the true melæna, the serious consequences are observed, which I have already enumerated.

VI. *Treatment.*—The cases which have enabled me to give a nosographic sketch of this disease, are very incompletely reported, as regards the treatment. In several instances, there have merely been administered soothing or gently laxative preparations, such as oil of sweet almonds and manna. This plan must have been adopted with a view to allay irritation of the mucous membrane, and to remove acrid matter from the bowels. In other cases, the treatment has been that directed against hemorrhages in general, such as the use of the mineral acids, cold, and astringents. Dr. Rahn-Escher gave to one patient diluted sulphuric acid in cinnamon-water, and to others he administered an emulsion, containing alum and musk, ordering, at the same time, fomentations of vinegar and quinine: cold compresses to the belly and astringent clysters have also been used. In my cases their employment constituted the only treatment.

To sum up, I believe that, in the almost entire inability to moderate, by means of internal remedies, any considerable amount of hemorrhage, we must be contented to place the infant in a cool and frequently changed atmosphere, and to apply the cold compresses to the belly, whilst the extremities are kept in a state of comfortable heat. Clysters appear to be useless: they fatigue the child, and are apt to cause stools; and, even when this latter result is obviated, they operate at a great distance fron the seat of the disease, and which is in the large intestine. If the pulse be very feeble, and the infant be threatened with syncope, there may be given some drops of wine, a little of the liquor of Hoffmann, peppermint-water, cinnamon-water, or other suitable stimulant. Perhaps urtication might prove beneficial. In all cases, it is necessary to sustain life by giving some spoonfuls of woman's milk cold, or by placing the child to the breast, if it have strength enough to suck: one or other must be done, even before the hemorrhage has been completely stopped. For symptoms of anæmia which may succeed, it will be necessary to subject the infant and his nurse to a somewhat lengthened course of chalybeates.

ART. 87.—*Treatment of Spina Bifida.*—Dr. Brainerd has treated this affection by injecting a grain of iodide of potass and half a grain of soda into the tumour, without evacuating the fluid in which it eventually becomes dissolved. As far as may be judged by a single case, this plan is attended by little or no danger.

Rev. Méd.-Chir., and *Prov. Med. and Surg. Journal.*

ART. 88.—*On the Purulent Ophthalmia of Infants.* By MM. VON AMMON and MILDNER.

(*Journal für Chirurgie*, and *Brit. and For. Medico-Chirurg. Review*, April 1849.)

Dr. Wengler furnishes an account of the treatment pursued by Von Ammon in this destructive disease. A collyrium is prepared, consisting of three or four grains of ext. belladon., six to eight drops of aqua oxymuriatica, and three or four ounces of water. By means of a small fine sponge, dipped in this lotion, the morbid secretion is gently removed from between the eyelids, and a few drops then inserted, after which fine linen compresses, also soaked in the lotion, are kept applied to the eyelids. In half an hour all this has to be renewed, the cries of the child announcing the discomfort produced by the accumulation of the secretion, and the removal of which from the ball of the eye is a great source of ease to it. After a while the belladonna is increased to five or six grains, and the aqua oxym. to ten or fifteen drops; the lotion being continued as long as the morbid secretion is produced, and being used at a higher temperature if the swelling is great, or the discharge ichorous. The indications sought to be fulfilled by its employment are the diminution of the spasmodic action and turgescence of the eye, and the procuring the enlargement of the pupil by means of the belladonna, while the secretions of the part are improved, and decomposition prevented, through the agency of the aqua oxymuriatica. Internally purgatives are administered.

REPORTS

ON THE

PROGRESS OF THE MEDICAL SCIENCES,

January—June 1849.

The intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON THE PROGRESS OF PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

BY THE EDITOR.

PART I.—GENERAL PATHOLOGY.

Of the various new works which have reached us for notice during the past semestrial period, three only are suitable for detailed analysis in the present section of this Report, viz. one by Dr. Addison, on 'Healthy and Diseased Structure;' a second by Dr. Bennett, on 'Cancer and Cancroid Growths;' and a third by Dr. Day, on the 'Diseases of Advanced Age.' Others have come to hand, and will be noticed in their appropriate place, among which we may mention a fourth edition of Dr. Hope's well-known treatise on the Diseases of the Heart; a small treatise entitled 'Thoughts on Pulmonary Consumption,' by Dr. Madden; 'A History of the Influenza of 1847-8,' by Dr. Peacock; an essay on 'Laryngismus Stridulus,' by Dr. Reid; and 'A Series of Clinical Lectures,' by Dr. Duncan. The favorable opinion we entertain of the latter is sufficiently attested by the fact that several portions have been selected as extracts in a former Volume (VIII, pp. 36, 44, 60), while they were in course of publication in the 'Dublin Medical Press.' We will only add further, that these lectures are all replete with practical instruction.

1. *On Healthy and Diseased Structure, and the true Principles of Treatment of Disease, especially Consumption and Scrofula.* By William Addison, M.D.—Dr. Addison is already known as a laborious pathologist, and author of certain experimental researches published in some of the earlier volumes of the 'Transactions of the Provincial Medical and Surgical Association.' The present volume appears to contain a condensed statement of the views there announced, and consists of two parts; the first treating of healthy and diseased structure in general, the second having reference especially to the pathology and treatment of scrofula and consumption. The whole is preceded by an introduction on the general nature of cells, and on vegetable morphology, in its analogy to the healthy and morbid conditions of animal growth and nutrition. The leading idea of the work appears to be, that in animals as well as in vegetables there is not only the natural *forward* process of development, but that there is also a *retrograde* metamorphosis in the former as in the latter. To the botanist this retrograde metamorphosis is familiar, in the occasional return of the higher-developed parts of the flower to more elementary forms of the same tissues, as, for instance, the conversion of the stamens into petals, and these again into leaves. In the human subject, the analogue of this is seen in scrofulous disease, in which a lower grade of cell-formation takes the place of the higher. This idea is more particularly worked out in the second part of the book (p. 63).

In passing to a more detailed analysis of Dr. Addison's volume, we may state succinctly that the first chapter is entirely physiological, embracing in two sections the laws of embryonic development, and the process of nutrition, or the reciprocal action of the solids and fluids of the body.

The second chapter comprises the pathological history of scrofula, and also

gives the author's views of the nature of inflammation. He here enters into the nature of tubercle, and expresses his conviction that it is not to be distinguished from the product of inflammation, or from pus, excepting in such difference as exists between purulent matter recently excreted and the matter of an old abscess; each appears to have the same elementary constitution; the colourless corpuscles, pus, and tubercle passing insensibly one into the other. He also alludes to the interesting researches of Van der Kolk and Guillot, who have announced that, in the progress of phthisis, the capillary system of the pulmonary artery becomes obliterated in the neighbourhood of the tubercular masses, and is replaced by a new system of capillaries, supplied by the arterial blood of the aorta. This great vascular transformation he regards as the accompaniment of that change of the pulmonary parenchyma from "the simple fibrous, to the corpuscular type," which he considers as the analogue of the retrograde metamorphoses of the vegetable kingdom.

The third chapter, which is headed "Practical Psychology," like the former, has two sections: the first embracing the morphological and psychological aspects of the human body, and the classification of *causes;* the second treating of the phenomena arising from the application of irritants, hysteria, causes of disease, &c. This concludes the first part of the work; the second, which treats more exclusively of pulmonary phthisis, we shall notice at a further page.

2. *On Cancerous and Cancroid Growths.* By John Hughes Bennett, M.D., F.R.S.E., &c.—This valuable and important addition to pathological science is a record of the author's recent labours in a department in which he has already made himself favorably known to the profession. In the present work the microscopic appearances of fifty-six cases of disease are given, and are illustrated by woodcuts, for the accuracy of which the author pledges himself. In a subsequent portion, he has given a systematic history of cancer, derived from original observations, as well as from the writings of the best English and foreign authors.

The term *cancerous* comprehends the varieties of morbid growths variously termed scirrhus, encephaloid, and colloid, and in which nucleated cells are always found infiltrated among filaments of fibrous tissue. The word *cancroid* is, after Lebert, used to denote those lesions which more or less resemble cancers to the naked eye, and are continually mistaken for them, such as fibro-nucleated, epithelial, fibrous, cartilaginous, and other growths. Among the fifty-six cases reported, several are instances of disease for the first time related. (See Obs. 7, 9, 21-24, 33, &c.)

Passing on to the second part of the work, we may state briefly that Dr. Bennett treats of cancerous and cancroid growths under the following heads: 1. Histology; 2. Chemistry; 3. General Anatomy; 4. Pathology; 5. Statistics; 6. Diagnosis; 7. Prognosis; 8. Rational treatment.

1. *Histology.*—Cancerous and cancroid growths contain the following elementary forms: 1, molecules and granules; 2, naked nuclei; 3, cells of various kinds; 4, filaments or fibres; 5, blood-vessels; 6, crystals. These, Dr. Bennett observes, exist in all growths, and are neither alone characteristic of cancer; they only become important in relation to each other. They are severally minutely described, and illustrated by numerous admirable engravings, without which mere verbal descriptions are almost unintelligible. Under the head of "Cells," Dr. Bennett furnishes us with much important information, particularly as regards the diagnosis of the cancer-cell. Speaking of the true cancer-cell, in contrast to the epithelial cell, he observes: "It is important to know that a young pavement epithelial cell, when isolated and viewed by

itself, presents all the physical characters of the cancer-cell. This is especially the case when they have been lying some time in serum or other fluid; but when studied in mass, they can be more easily distinguished. The epithelial cells have a disposition to run together in groups, to adhere at their edges, and are of uniform size; cancer-cells, on the other hand, have not this tendency, but are mostly separated by granular and molecular matter. They never adhere at their edges, and vary much in size."

II. *Chemistry.*—Dr. Bennett does not think that any good is done by analysing large masses of cancerous matter; but only by a careful examination of the minute structural elements. The chemical elements allowed by histologists are stated to be four, viz. albumen, fat, mineral principles, and pigmentary principles. *Albumen* forms the basis of the fibrous element of morbid structures, and is, as the author believes, directly converted into fibrin during the inflammatory process. *Fatty* matter exists as free fat, fatty acid, saponifiable and non-saponifiable fat. Structurally, however, the author states it is never free, for when brought into contact with albumen, it is covered with a thin film of that principle. The mineral and pigmentary principles do not require special mention.

III. *General anatomy.*—In this section of his work, the author agrees with Dr. Walshe in admitting but three forms of cancer—viz. scirrhus, encephaloid, and colloid.

IV. *General pathology.*—The following is a condensed statement of the author's view of the origin and development of cancerous tissue. The filaments, cells, &c., which form cancer-tissue, originate in a coagulated exudation formed in the usual way. When first perceptible, cancer-matter consists of a finely granular matter, in which the cancer-cell arises as in a blastema. Part of the exudation is converted into cells, part into fibres, which interlace in every direction with the cells to form the stroma. Why the cancerous exudation should differ from that of simple inflammation or tubercle, Dr. Bennett is not able to say. Taking the former as the standard, he considers tubercle as below, and cancer as above par, as regards power of development; the former being deficient in that power, the latter having it in excess. Tubercular degeneration he believes to be a fault of primary digestion, cancer of the secondary; and he further states that they are, as it were, antagonistic principles.

The growth of a cancerous tumour takes place by rupture of the cells and development of the nuclei into independent cells, and give rise to others in turn. The blastema first supplied by the original exudation, is afterwards derived from new vessels which develope themselves in the tissue, and by some mysterious selective power, abstract the necessary ingredients from the blood. The growth once formed, increases slowly or quickly, according to circumstances. The cachectic appearance which accompanies the progress of the disease is, the author thinks, not connected with the cause, but is rather the result of perverted nutrition occasioned by it. He denies that cancer can be communicated by inoculation.

Cancer degenerates and dies like other vital formations; but it leaves forms which perpetuate its existence as long as they receive nourishment. The spontaneous arrest of cancer takes place, according to the author, in one of three ways, by the cells becoming aborted, and forming—1, a cicatrix; 2, a fatty mass; 3, a calcareous mass.

That the former is a more frequent termination than is suspected, is rendered probable by the author's observations; and he feels assured that when such facts are more diligently sought after, spontaneous cure of cancer will be found more common than has been supposed.

VI. *Diagnosis.*—The author admits the difficulty of diagnosing cancer from

the symptoms alone, and he is equally indisposed to put implicit faith in the microscope alone. It is, he remarks, by the use of this instrument, conjoined with a careful appreciation of the general symptoms, that a diagnosis ought to be founded. He, however, cautions us that the subject is yet in its infancy.

VII. *Prognosis.*—This section of Dr. Bennett's work touches two questions of vital consequence—viz. the supposed uniform fatality of cancer, and its tendency to reproduction after removal. He brings forward several facts to show that cancer does not always continue to enlarge, but that it may sometimes become abortive. Much uncertainty is thrown around the second question by the want of precision, which is too often displayed in surgical reports and descriptions.

VIII. *Rational treatment.*—The author divides his remarks on treatment into three sections.

a. The means of retardation and resolution.—The growth of all cells being influenced by elevated temperature, moisture, room for expansion, &c., the author points out the the reasonableness of availing ourselves of the agency of cold, pressure, and a dry atmosphere.

b. Extirpation.—This may be done either by excision or chemical agents. As regards excision, Dr. Bennett has come to the conclusion that early excision should be resorted to. He is convinced that if this were more frequently practised, many valuable lives would be saved. After considering the usual objections made by surgeons to operating for cancer, Dr. Bennett maintains that any tumour, as long as it returns in the same place, should be excised, if the patient's strength be not too much reduced. He particularly advises a more careful examination than is usually made of the wound at the time of the operation, in order to ascertain whether any cancer-cells are left behind, and for this purpose he regards the microscope as indispensable.

c. Prevention.—Dr. Bennett has some useful hints on this point. He states that tubercle is essentially different from cancer, and is materially modified by the exhibition of animal oils; but cancer, on the contrary, he considers to be rather encouraged by a superabundance of the fatty principle in the system. He would, therefore, suggest that the cancer should be starved out, so to speak, by depriving the system of this principle, in so far as may be compatible with the maintenance of the general powers.

We now close our analysis of Dr. Bennett's volume, and in impressing upon our readers the necessity of being acquainted with its contents, will venture to assure them, that by the study of it in connexion with the drawings by which it is accompanied, they will be made familiar with the natural history of cancer, as far as science has at present been able to unravel its mysteries.

3. *On the Domestic Management and most important Diseases of Advanced Life.* By GEORGE E. DAY, M.D.—It will appear strange that, until Dr. Day published the present work, we were destitute of a distinct treatise in the English language on the maladies incidental to old age, and the modifications required in their treatment; the literature of the subject, until this period, being entirely confined to a few separate treatises on individual diseases. Dr. Day has, therefore, we conceive, exercised a wise discretion in selecting this important subject as the field of his labours; but we should have been pleased to have found the scientific portion of the work more comprehensive, and the domestic part altogether omitted; for we are assured that the attempt to write so as to be intelligible to the public, at the same time to give satisfaction to the profes-

sion, is rarely quite successful. We do not, however, on this account, hesitate to recommend a perusal of Dr. Day's pages, as they contain a large amount of useful practical information, which the English reader will not be able to meet with elsewhere in his own language. Our space will not allow of a close analysis of Dr. Day's volume, and we shall, therefore, content ourselves with giving a general outline of its scope and intent. It consists of thirteen chapters. In the first he discusses the different epochs of declining age, with the modifications, both anatomical and physiological, which the different organs undergo. These he takes in succession, as they appear in the respiratory, nervous, and circulatory system. He also calls attention to what he terms the *insulation* of the different organs in the aged; or, in other words, the little sympathy which one has with another in a state of disease, which, as is well known, is directly the reverse in the maladies of childhood.

The third chapter, on the medical treatment of old age, the reader will find of value; but the subject is, we think, scarcely treated with the detail which its importance demands.

Chapter IV contains the history of the affection which has been termed by Sir H. Halford the climacteric disease; and chapter V treats of senile marasmus: both these chapters are brief.

In the succeeding chapters Dr. Day considers the diseases most fatal to advanced life, commencing with pneumonia, the great frequency of which, in old persons, he believes to be much underrated. In alluding to the causes of the disease, he calls attention to the importance of frequently changing the posture of aged persons, as the long persistence in one position favours the hypostatic congestion of the lungs. He points out how commonly the disease is latent, and the consequent necessity for frequent stethoscopic examination. In the treatment he relies on stimulating expectorants; calomel and opium have not the same value as in the pneumonia of middle age. After pneumonia, the author discusses in succession, bronchitis, bronchorrhœa, and asthma; under the latter head he describes the "urinous" and "gouty" asthma of Schonlein, which, as they are varieties not sufficiently understood in this country, we have given as "abstracts" in a former part of this Volume (see art. 18).

Chapter VIII, which we regard as the most valuable portion of Dr. Day's volume, is occupied with the diseases of the nervous system in old age. It is divided into six sections, the contents of which are respectively apoplexy, meningeal apoplexy, cerebral softening, meningitis, mental diseases of old age, neuralgic affections. Each and all of these topics are treated of in a practical manner, but with too much brevity. This, we trust, the author may be induced to rectify, should another edition be called for.

The ninth and tenth chapters are taken up with the diseases of the alimentary canal and the heart.

In Chapter IX the author treats of the diseases of the genito-urinary apparatus, under four sections. One of these will be found among our "Abstracts" (art. 26). The diseases of the skin are considered next, in Chapter XII; after which we have the treatment of ulcers of the lower extremity and senile gangrene: on each of these subjects the reader will find much valuable information. In the last chapter we have a description of gout and rheumatism; and the volume terminates with an account of the treatment of rheumatic and neuralgic disorders, by the "firing" plan of Dr. Corrigan, of which we have given an account in a former Volume (III, p. 199). We have, since the date of Dr. Corrigan's paper, had frequent opportunities of testing the mode of treatment in question, and can fully confirm Dr. Day's favorable opinion of its merits.

§ I.—*Zymotic Diseases.*

1. *Fever.*—We have to notice several important additions to the literature of this extensive subject, since the date of our last report. The first of these is an essay by Dr. Davies, of Bath, which formed the address on Medicine at the last meeting of the Provincial Medical and Surgical Association. It is entitled—

2. *Fever in its Relation to Sanitary Reforms.*—The author commences his subject with the endeavour to establish that there is a form of fever to which the following description applies :

1st. That its progress is marked by a specific eruption.

2d. That it is propagated by contagion.

3d. That there is no distinct evidence of its ever spreading in any other way than by contagion.

4th. That the same individual is not, for the most part, liable to a second attack.

This is typhus or maculated fever.

In support of his first proposition, the author, omitting any reference to the older authors, quotes the descriptions of the disease as given by Drs. Alison, Peebles, West, Henderson, Davidson, and Watson; narrating, at the same time, several well-marked cases which came under his own care at the Bath United Hospital. To prove the second proposition, he is also content to refer to Alison, Graves, and other eminent authorities, without mentioning their observations at length. The consideration of the third proposition is deferred to a future part of the essay, and the author proceeds to discuss the fourth—that typhus occurs but once in the same individual.

The cause of fever is considered to be a poison which enters the blood, and then propagates itself with the help of appropriate materials therein found. He thinks that some of these materials, which are not essential to life, are destroyed by the process of "zymosis," as it is called; and hence the reason that the individual is not liable to a second attack, If this be the case (he continues), it follows that the period between exposure to contagion and the commencement of disease is that during which the poison is accumulating in the blood; that the beginning of fever corresponds with that amount of saturation which is incompatible with health; and that convalescence coincides with the maturation and elimination of the poison. In corroboration of the opinion expressed in this proposition, the author next adduces the evidence of Dr. Davidson, whose tables show that, out of 609 cases of maculated typhus, only 74 stated that they had previously laboured under fever; and, as he rightly observes, knowing how the different varieties of fever are confounded together, it is probable that many of these had not been the subjects of true spotted fever.

Having thus determined the distinctive characters of true typhus, the author next alludes to another form of fever, which has been ably described by Dr. Wardell, and which is not characterised by maculæ, but has great tendency to relapse, has but a small mortality, and does not afford immunity to a second attack. After this, he proceeds to discuss the question of fever more directly in reference to sanitary questions. He dissents, *in limine*, from the opinion which may be considered as the foundation of the sanitary movement—viz. that typhus can originate in decomposing animal and vegetable matter; but, at the same time, he guards against the imputation of indifference to the benefit which may indisputably accrue to the poorer classes by improved hygienic arrangements. His object is to counteract our overweening confidence in the powers of sewerage, &c., to eradicate disease, by showing that fever does not depend upon defective sewers only, but will

always exist while fluctuation in the price of food and in labour exists, and while the population remains in a state which does not enable it to arrive at and maintain such a degree of health and vigour, as shall cause it to cease to be predisposed to zymotic diseases.

It must be observed that Dr. Davies is here alluding to true typhus: he does not deny the power of local causes to originate a fever; indeed, he alludes to the instances, which we have already given (Vol. IV, p. 215), narrated by Dr. Christison in proof of this.*

3. *Typhus and Typhoid Fevers: Question of Identity.*—This disputed point in the history of fever has recently met with careful investigation at the hands of Dr. W. Jenner, who has made the examination of 66 fatal cases of fever the basis of his inquiries. The result of these we shall give as briefly as possible.

These 66 fatal cases were arranged in two groups, placing in the one the cases in which Peyer's glands were found to be diseased, in the other those in which, as far as the unassisted eye could determine, these glands were in a healthy condition. The first group contained 23 cases, being instances of typhoid fever, the latter 43 cases of true typhus.

In order to bring out the differences of these two fevers in prominent relief, the author proceeds to contrast them under various aspects. Thus:

Previous state of health, &c.—In both classes of fever the patients, as a general rule, were in good health previous to the attack. Their size and weight were also nearly equal.

Complexion.—In "typhoid" fever 80 per cent. were noted to be of fair complexion; in "typhus," 30 per cent. only were fair; some fallacy is, however, admitted on this point.

Sex.—Of the "typhoid" cases there were 13 males; 10 females. Of the "typhus" cases, 20 were males; 23 females.

Age.—The average age of the typhoid patients was 22·08 years; the youngest was 10, the oldest 36 years. The largest number of cases occurred between the ages of 20 and 29.

In typhus, the mean age was 41·8; the youngest 8 years, the oldest 70. The largest number occurred between 40 and 50.

Duration.—This is a point always difficult to ascertain, from the want of correct data respecting the first sensations of illness, especially in the class of patients who, as hospital inmates, were the subjects of the present inquiries. The author attempts an approximative calculation, but we do not regard his deductions as of sufficient value to be of service in the solution of the question upon which he is engaged.

Eruption: Typhoid.—The eruption in the typhoid cases was papular, slightly elevated, but not acuminated, rounded at the base. The patches were circular, of a bright rose colour, without a well-defined margin. *They disappeared completely on pressure*, resuming their characters when that was removed. This fact was observed from first to last. They never passed into petechiæ. The ordinary duration of the papulæ was three or four days, and fresh papulæ made their appearance every day or two. The number seen at one time was generally from six to twenty, and usually occupied the abdomen, thorax, and back. A *pale scarlet* tint of skin sometimes preceded the eruption. These observations are thus recapitulated:

1st. Rose spots were detected in all cases admitted before the fourteenth day of the disease.

2d. They usually appeared from seven to fourteen days after the first symptoms of the fever.

3d. The ordinary duration of each spot was three days.

* Transactions of the Provincial Medical and Surgical Association, 1848.

4th. Fresh spots appear every day or two, till from the twenty-first to the thirtieth day.

5th. The fever terminated by the thirtieth day, as proved by no spots appearing after that day, unless in the case of a relapse.

Eruption: Typhus.—In typhus the eruption was never papular, and its characters varied with its duration. On its first appearance, it consisted of dusky pink spots of irregular outline. In two or three days the spots were no longer elevated, and were darker; they faded, but were not obliterated by pressure. In some the centre became dark purple, and remained unaltered by pressure, or they became converted into true petechiæ. The typhus spots are very numerous, and are usually found on the trunk and extremities, sometimes limited to the former. When numerous they had not all the same intensity of colour; by which a mottled appearance was produced on the skin. To sum up:

1st. The typhus-rash was present in all cases.

2d. It usually appeared from the fifth to the eighth day of the disease.

3d. Fresh spots never appeared after the second or third days of the eruption.

4th. The duration of each spot was from its first appearance till the death or recovery of the patient.

5th. The rash disappeared between the fourteenth and twenty-first days; when death occurred after the latter date, it was the result of local disease.

6th. In no case was there any true relapse.*

By this interesting communication the non-identity of typhoid and typhus fevers appears to be established on the following grounds:

The presence and absence of diseased Peyerian glands in the two fevers respectively.

In the average of age of patients attacked; no typhoid being 22 years, or typhus 41.

In the character of the cutaneous eruption, which is distinct in the two fevers.

In the tendency to *relapse* in typhoid; its absence in typhus.

— In connexion with the subject of fever in general, we take the opportunity to direct attention to a series of papers by Mr. Macilivan, now in course of publication in the 'Medical Times;' and likewise to the communications of Mr. Todd (Lancet, January 1849). Dr. Paterson, of Leith, has also given a full and accurate account of the epidemic of 1847-8, as it appeared in Leith and its neighbourhood.†

4. *Intermittent Fever: new Symptom.*—This sign, pointed out by M. Vanoya, consists in a peculiar condition of the conjunctival membrane of the lower eyelid. In a healthy subject this surface presents a more or less vivid colour; but when intermittent fever has lasted some time, M. Vanoya affirms that a pale crescentic line is seen, the extremities of which correspond to the canthi, and the concave edge embracing the sclerotic. This line is seen by everting the lower eyelid, and causing the patient to look upwards. It is said to disappear under the use of quinine.‡

5. *Scarlatina.*—Mr. Tripe has written at great length on this eruptive fever, in a series of papers published in the 'Medical Times.'§ He defines the disease, as it is generally believed in the present day, to be a specific inflammation, not only of the skin, but also of the mucous membranes of the alimentary canal and urinary passages, which terminates in desquamation. A great part of his earlier papers are taken up with the description of the epidemic scarlatina of 1848, which he shows to have been distinguished by the severity of the anginous symptoms.

* Monthly Journal, April 1849.

† Edinburgh Monthly Journal.

‡ Medical Times.

§ November and December 1848.

He admits three varieties of scarlatinous dropsy:—1, that arising from simple debility, in which the urine is not albuminous; 2, that arising from subacute inflammatory congestion of the kidney; 3, that arising from acute inflammation and disorganization. In both the latter forms the urine is albuminous. His treatment of these affections does not differ from that which will be found in our abstracts in the present Volume (art. 3).

— Dr. Miller reports 219 cases of scarlatina, of which 59 were followed by dropsy, while in 10 this symptom appeared without any precursory rash. Scarlatina is divided by him into four species, according to the intensity of the symptoms, the absence or presence of dropsy, &c., and he remarked, that in general the anasarca and albuminuria were in converse ratio. In discussing the question whether renal dropsy should be considered as a sequela, he announced his opinion that the renal affection is an integral part of the disease, and as much the direct effect of the scarlatinous poison as the eruption. In proof of this he instanced the ten cases in which anasarca and albuminuria were not preceded by the cutaneous efflorescence.*

— An excellent paper has also been contributed by Dr. Scott Alison, in which similar views of the relationship of the renal affection are entertained. The most practical portions of this essay appear among our extracts (art. 4); together with several other important notices of scarlatinous dropsy.†

— Some of the time of the Westminster Medical Society has been recently occupied by a discussion on the merits of the treatment of scarlatina by acetic acid, as advocated by Mr. S. R. Brown, in a little book published a year or two back. (See Half-Yearly Abstract, Vol. III, p. 190.) The author places great faith in that mode of treatment, and affirms that it prevents the occurrence of dropsy; but this, as well as the general advantages of the medicine, appeared to be a disputed point with the majority of the speakers.‡

6. *Influenza.*—Dr. Bevill Peacock has published a highly useful and valuable history of the epidemic catarrh of 1847-8, which it was our intention to have noticed in our last Report; but which, in consequence of the space occupied by the general index, we were compelled to postpone, together with other communications.§

Epidemic catarrh, as it appeared in the metropolis, is divided by the author into three varieties:

1st. Simple catarrhal fever.

2d. Catarrhal fever, with pulmonary complication.

3d. Catarrhal fever, with abdominal complication. This latter is further subdivided into—(*a*) simple enteric fever; (*b*) fever with bilious disorder and remittent type; (*c*) gastro-enteric fever with rheumatic complication.

The first of these, the simple catarrhal fever, was a comparatively trifling ailment; but the severity was much increased in the second order of cases. The pulmonary complication observed by the author appears to have been acute or subacute bronchitis; bronchitis complicated with pulmonary tubercle, or heart disease, and pneumonia. Of these the former was the most frequent, and was fatal in a large proportion of instances, even when uncomplicated with tubercular deposit. The cases accompanied by pneumonia were less formidable.

The variety of the disease accompanied by abdominal complication appears to have been very fatal in proportion to the number of cases observed; and from the description might as well have been termed typhoid fever with catarrhal complication, as catarrh with abdominal complication. The predominant symptoms, as well as the post-mortem appearances, were evidently typhoid.

* Reported in various journals of January 1849.

† London Journal of Medicine, March 1849.

‡ Medical Gazette, No. 17.

§ On the Influenza, or Epidemic Catarrhal Fever of 1847-8. London, 1848.

The latter pages of Dr. Peacock's volume are those which will find most favour with our readers, as they offer a most admirable summary of the treatment adapted to the different phases of the disease.

In the pulmonary complications it was early ascertained that depletion, to any great extent, was prejudicial, though temporary benefit sometimes followed a small local depletion. The most successful treatment was that which had throughout some reference to the sustenance of the general powers, with the careful employment of calomel and antimony.

The treatment of the cases with abdominal complication was conducted on the mild expectant plan; the early stages by gentle diaphoretics, the latter by tonics and stimulants. Where a tendency to remission existed, quinine was early resorted to. In the rheumatic form of the disease, decided benefit followed the use of colchicum in small doses; but it was found necessary in all cases to combine it with ammonia and other stimulants.

The volume concludes with a series of illustrative cases, and is, as a whole, an important addition to the literature of epidemic diseases.

7. *Glanders.*—Dr. H. Graves records two additional cases of this disease in the human subject, both of which occurred in persons who had been occupied in skinning a dead glandered horse. The chief interest in the communication is the mention of a white zone surrounding the glanderous pustules as distinctive of the disease.*

8. *Cholera.*—As this disease has a second time been prevalent during the period which has elapsed since our last Report, we may be expected to give some account of its progress and treatment. The communications on the subject which have reached us, and which have appeared in other journals, are almost endless; and it might reasonably have been expected that some new idea, or some improvement in the results of treatment, would have been elicited. We are constrained to say that in this respect our anticipations have not been realized; for we do not observe that the experience which has been accumulated has in any degree diminished the mortality of the disease. We observe in the present epidemic what we noticed in the previous one, that on the first invasion of the disease in any locality, the mortality was pretty uniformly one in two or three; and that after a time the virulence of the disease appeared to be partially exhausted, and recoveries thus became more frequent, and were frequently and erroneously attributed to the favorite mode of treatment of the particular practitioner, when in reality the improvement was due to the smaller intensity of the poison. We are not able, with any justice to the writers, to give an analysis of a tithe of the communications before us, and we shall therefore content ourselves with enumerating the titles of the principal:

'Reports on the Asiatic Cholera as it appeared in the Madras Army,' by Samuel Rogers, Esq.;

'Cholera at Malta in 1837,' by Dr. Stilon;

'Cholera Gleanings,' by Dr. Gilchrest;

'Two Lectures on Cholera and Intermittent Fever,' by Dr. Bell;

'Code of Safety,' by Dr. Collier;

'Sketch of a Novel Treatment of Diarrhœa and Cholera,' by Dr. Skiers;

'Practical Observations on a Successful Method of Treating Cholera,' by Dr. Paterson;

'Cholera, its Electrical Origin,' &c., by Dr. Holmes;

'Observations on Malignant Cholera,' by Dr. Buchanan;

'On the Treatment of Cholera,' by Dr. Billing;

'Lectures on Cholera,' by Dr. Chambers.

* Dublin Quarterly Journal, November 1848.

§ II.—*Diseases of the Blood.*

9. *Purpura.*—Two analyses of the blood in two cases of purpura have been published by Dr. Parkes. In one case the fibrin was much increased from the occurrence of rheumatic inflammation; in the other, as in the analyses of Andral and Routier (Abstract, Vol. III, p. 310), it was greatly diminished. The corpuscles were below the average in both. The most remarkable fact elicited in the present cases was the existence of an increased proportion of iron, which would, *a priori*, be thought incompatible with a condition of passive hemorrhage.*

In the treatment of purpura, Mr. Carlyon confirms the opinion of the value of nitre in this disease. He gives it in doses of ten grains every three or four hours.†

10. *Anæmia—Peculiar Form of.*—Dr. Addison has called the attention of the profession to a form of anæmia which he thought had not been previously noticed. It was a state of general anæmia incident to adult males, and had for several years past been with him a subject of earnest inquiry and of deep interest. It usually occurs between the ages of twenty and sixty; sometimes proceeding to an extreme degree in a few weeks, but more frequently commencing insidiously, and proceeding very slowly, so as to occupy a period of several weeks, or even months, before any very serious alarm is taken either by the patient or by the patient's friends. Its approach is first indicated by a certain amount of languor and restlessness, to which presently succeed a manifest paleness of the countenance, loss of muscular strength, general relaxation or feebleness of the whole frame, and indisposition to, or incapacity for, bodily or mental exertion. These symptoms go on increasing with greater or less rapidity: the face, lips, conjunctivæ, and external surface of the body, become more and more bloodless; the tongue appears pale and flabby; the heart's action gets exceedingly enfeebled, with a weak, soft, unusually large, but always strikingly compressible pulse; the appetite may or may not be lost; the patient experiences a distressing and increasing sense of helplessness and faintness; the heart is excited, or rendered tumultuous in its action, the breathing painfully hurried by the slightest exertion, whilst the whole surface bears some resemblance to a bad wax figure; the patient is no longer able to rise from his bed; slight œdema perhaps shows itself about the ankles; the feeling of faintness and weakness becomes extreme, and he dies either from sheer exhaustion, or death is preceded by signs of passive effusion or cerebral oppression. With all this, the emaciation or wasting of the body, though sometimes considerable, is not unfrequently quite disproportionate to the failure of the powers of the circulation—relaxation and flabbiness, rather than wasting of the flesh, being one of the most remarkable features of the disorder.

Dr. Addison next proceeded to give the details of several cases which had fallen under his own immediate observation. In only two of these did the patients recover: the one, a man below the middle period of life, who was looked upon as past all hope, and suspected to be suffering from some latent malignant disease, slowly but steadily recovered under the free use of brandy, but with the singular result of the hair of one side of his head turning permanently gray, whilst the other retained its original brown colour. The second case of recovery occurred in a gentleman above middle age: it was by

* Medical Gazette, November 10, 1848.

† Provincial Medical and Surgical Journal, December 13, 1848.

no means far advanced, but was sufficiently well marked to excite alarm. He left his business, quitted London, and sought recreation in the country. After a time he returned, and appeared to have shaken off the disorder almost entirely. In three cases only was there an inspection of the body after death, and *in all of them was found a diseased condition of the supra-renal capsules.* In two of the cases no disease whatever could be detected in any other part of the body. Dr. Addison inquired if it were possible for all this to be merely coincidental. It might be so, but he thought not; and making every allowance for the bias and prejudice inseparable from the hope or vanity of an original discovery, he confessed that he felt it very difficult to be persuaded that it was so. On the contrary, he could not help entertaining a very strong impression that these hitherto mysterious bodies—the supra-renal capsules—may be either directly or indirectly concerned in sanguification; and that a diseased condition of them, functional or structural, may interfere with the proper elaboration of the body generally, or of the red particles more especially. At all events, he considered that the time had arrived when he felt himself warranted in directing the attention of the profession to these curious facts. Dr. Addison, also, in regard to the anæmia he had described, alluded to cases of purpura, and some of the more anæmiated forms of chlorosis in the female, which he could not but regard as being more or less allied to the morbid state to which he had directed their attention. Indeed, not only had he found the anæmia in question occasionally occurring in connexion with purpura, but had observed in cases of the latter disorder certain local symptoms which pointed somewhat significantly to the seat of the supra-renal capsules; whilst the bloodless and waxy appearance of certain chlorotic females bore so close a resemblance to the anæmia described, that it was difficult not to suspect the existence of something common to both.*

11. *Anæmia—Enlargement of the Thyroid Gland.*—Dr. Begbie, in a valuable memoir lately published, endeavours to trace a connexion between an anæmic state of the system and bronchocele. He relates three cases which were the means of calling his attention to this apparent correlation of disease. The same subject had been previously noticed by Dr. McDonnel in the 'Dublin Journal,' vol. xxvii, by Sir H. Marsh, and by Dr. Graves (Clinical Lectures, ii, 193); but these physicians regarded both the enlarged thyroid and prominent eye as the result of heart disease, and did not remark their connexion with a general bloodlessness of the system.†

§ III.—*Adventitious Products.*

12. Under this section we are called upon to notice the article in the 'Cyclopædia of Anatomy and Physiology,' by Dr. Walshe, which offers to the profession a succinct and, at the same time, masterly account of the various abnormal products to which the human subject is obnoxious. An adventitious product is determined by the author to be "any substance which is either produced by or developed in connexion with the animal frame, neither forms a natural constituent element, nor a natural secretive product of the structures in which it is involved." These substances are very numerous, and present themselves under three forms: the solid, the liquid, and the gaseous. The solid formations are arranged by the author in two main groups,—the *non-plastic*, or *precipitates*, and the *plastic*, or *formations*—the various subdivisions of which are exhibited in the following table:

* Medical Gazette, March 1849.

† Monthly Journal, February 1849.

CLASS I—Non-plastic Products, or Precipitates.

- **Sub-class I.** (*Saline*) Produced by precipitation.
  - Sect. I. Particles.
  - Sect. II. Masses.
    - A, Calculi.
    - B, Concretions.
- **Sub-class II.** (*Animalized*) Produced by exudation.
  - Sect. I. Protein compounds.
  - Sect. II. Fat.
  - Sect. III. Sugar.

CLASS II.—Plastic Products, or Formations.

- **Sub-class I.** Products possessed of a dependent existence, and derived from a blastema. *Blastemal formations.*
  - Order I, Derived from a blastema which generates cells deficient in vegetative power and permanency. *Deposits.*
    - Sect. I. Typhous deposit.
    - Sect. II. Tuberculous deposit.
    - Sect. III. Purulent „
    - Sect. IV. Melanic „
    - Sect. V. Diphtheritic „
  - Order II, Derived from a blastema which generates cells possessed of vegetative power, but deficient in permanency. *Growths.*
    - Sub-order I. Deficient in the power of infiltrating tissues. *Non-infiltrating growths.*
      - Of protein basis ... Hematoma, Sarcoma, Cystoma, Angeiectoma, Melanoma, ?
      - Of fat basis ... Lipoma, Steatoma, Cholesteatoma.
      - Gelatin basis ... Fibroma, Enchondroma, Osteoma.
      - Undetermined basis ... Colloma.
    - Sub-order II. *Infiltrating growths.*
      - Protein basis | Carcinoma.
  - Order III, Derived from a blastema which generates cells deficient in vegetative faculty, but possessed of permanency. *Pseudo tissues.*
    - Sub-order I. | Induration matter.
    - Sub-order II. Simulating the natural tissues.
      - Extra vascular ... Epithelium, Hair, nail, Cartilage.
      - Simple vascular ... Cellular, serous, Fibrous, elastic, Osseous, Nervous.
      - Compound vascular ... Erectile tissue, Lymph vessel, Fibro-cartilage, Bone, tooth, Cutaneous, mucous, Glandular, Muscular.
- **Sub-class II.** Products possessed of independent existence, and derived from a germ. *Germ-formations.*
  - Order I. *Animal* ... Entozoa, Epizoa.
  - Order II. *Vegetable* ... Entophyta, Epiphyta.

Our readers will not fail to perceive that it would be impossible, in the limits of these Reports, even to glance at every individual substance contained in the above table, wherefore for information on many of them we must be content to refer to the original; but as certain of their number are of more direct importance in practice than others, we think it will be useful to devote a brief space to their consideration.

13. *Albuminuria.*—The conditions under which albumen may exist in the urine are stated by Dr. Walshe to be—1. From an unnatural state of the blood, as in purpurea and scurvy. 2. Morbid states of the genito-urinary apparatus. 3. Accidental mixture of the genital products. 4. Some cause hitherto unestablished.

Under the second head we may have *functional* and organic albuminuria. The knowledge of the conditions under which the former may appear is of great importance, as without this an erroneous prognosis may frequently be given.

The urine may exhibit a coagulum from the admixture of semen, as well as of the leucorrhœal and menstrual discharges.

Among the undetermined causes of albuminuria mentioned by Dr. Walshe, are certain acute and chronic diseases unconnected with disease of the kidney, more particularly diseases of the heart.

14. *Fatty Degeneration.*—Unhealthy formation of fatty and oily substances is of frequent occurrence; this is seen in general obesity, upon which subject we may refer to a paper by Dr. Wardell,* and in fatty transformations of various organs, as the liver, heart, kidneys, muscles, &c.

Dr. Walshe speaks of three forms of fatty disease of the *liver*: the one, the "fatty liver" par excellence, as is seen to coexist with phthisis; an adipose condition, which is in some undetermined manner associated with cirrhosis; and a third form, which the author has met with but three or four times, consisting in the deposit of cholesterine crystals among the hepatic cells.

Fatty disease of the *kidney* is spoken of in connexion with the information derived from Gluge and Johnson, as to its existence in one variety of Bright's disease.

15. *Fatty Degeneration of Muscle.*—The fatty transformation may affect both orders of muscle, the voluntary and the involuntary. A remarkable example of the former has very recently been placed on record by Mr. Hallet, in the case of the body of a man, æt. 78, who had died of paralysis. On dissection, all the muscles of the back could not be distinguished, many of them, as well as of those on the front of the chest, having undergone the fatty transformation. Some of the muscles were entirely transformed into adipose tissue, others more partially so. The muscles which were thus altered are enumerated by the author in the following order:

1st. In the back, the face, and region of the scalp, all the muscles, with the single exception of the latissimus dorsi, were completely converted into fat.

In the cervical region, the altered muscles were the recti antici, the longi colli, and the scaleni.

In the region of the trunk, the muscles completely transformed were the pectorales, the serrati magni, the diaphragm, both external obliques, and the psoas magnus and quadratus of the right side. The intercostals, the recti, and the transversales were only partially affected.

In the upper extremities, the muscles wholly transformed were the triceps, the biceps, and brachialis anticus, the supinator, both extensores carpi ra-

* Medical Gazette, April 8, 1849.

diales, the extensor communis digitorum, and the whole of the palmar muscles. More partially changed were the deltoid and scapular muscles, the flexores carpi radiales, and profundi digitorum.

In the inferior extremities, the transformation was equally extensive.

None of the involuntary muscles were affected, with the exception of the heart.

The author, after quoting other examples of this peculiar change, remarks that it is apparently strictly confined to that species of muscular fibre called the "striated." It is the result of various diseases which prevent due exercise, and thus interfere with the nutrition of the muscles. Amongst these is paralysis, as in the present instance, and rachitis. It is also not unfrequently seen in cases of club-foot, anchyloses, unreduced dislocations, &c. The deposition of fat is very slow, and has been ascertained by examination to take place within the sarcolemma, the muscular tissue being absorbed *pari passu*. It is this internal deposit that distinguishes true adipofication from other appearances sometimes found in old decrepit individuals, and which are caused by the deposition of fat in the outer fibrillar cellular tissue.*

16. *Tubercle* is arranged by Dr. Walshe under the class of blastemal formations, order Deposits. His description of this product, together with its chemical and microscopic history, afford nothing of particular interest, but on the disputed question of the affinities of tubercle and the semi-transparent granulation, he has observations which are worthy of repetition. Dr. Walshe agrees with Laennec and Louis that the gray semi-transparent granulation is an antecedent stage of yellow tubercle, for the following reasons:—Because yellow tubercle appears in the centre of gray granulation at a certain stage of its existence, and gradually fills the whole space occupied by it. In the lungs also, the gray granulation follows the same topographical course as yellow tubercle, originating in the upper lobes and migrating downwards. The two are likewise so constantly found together, that Louis only found granulations without tubercle four times, and the latter without the former only once. The relationship between the two is further sustained by microscopic inquiry.

Dr. Walshe believes that tubercle may, under favorable circumstances, be absorbed *in toto*, and instances in proof of this, the disappearance of scrofulous glands, and the recovery from bronchial phthisis in childhood. He states that he has never seen a cicatrized tubercular cavity in the lungs, and doubts with reason, that the puckerings of the pleura, which are so often quoted as evidences of that termination, are capable of being so interpreted.

We owe some apology to Dr. Walshe for so curt a notice of his important article; but our limited space, and the numerous matters of which we are compelled to take cognizance, must be our excuse. We need not say that Dr. Walshe's character as a profound pathologist is a sufficient guarantee that his 'Essay on Adventitious Products' offers an accurate view of the present state of knowledge on the various subjects treated of.

17. *On the Existence of Free Carbon in the Human Body.*—Dr. Paxton, of Rugby, has presented a brief memoir on the production and extrication of uncombined carbon in various parts of the body; turning his attention, however, chiefly to its accumulation in the pulmonary tissues. Contrary to the opinions of Brockmann and others (Abstract, II, 216; III, 30), that "black pulmonary matter" is not only innocuous, but has even the power of putting a stop to tubercular deposition, Dr. Paxton regards it as an unmixed evil, and when superadded to pulmonary tubercle, as tending seriously to aggravate the existing disease, by further abridging the areolar tissue of the lungs.

* Edinburgh Medical and Surgical Journal, April 1849.

In the cases observed by the author of this paper, the retention of carbon arises in one of three ways: 1. During the reduction of animal power by lengthened years. 2. Where the existence of disease prevents both the reception of oxygen and the expiration of carbonic acid. 3. Where the individual lived in a situation with habitual insufficiency of oxygen. Another and potent cause of the presence of carbon in the lungs, briefly discussed, is its introduction from without, in the cases of persons living in manufacturing towns and in coal-mines. Of all these forms, the author affords beautiful coloured illustrations.*

PART II.—SPECIAL PATHOLOGY.

§ I.—*Diseases of the Nervous System.*

18. *Apoplexy and Heart Disease.*—One of the most generally received opinions connected with the subject of apoplexy, and other forms of cerebral disease, is their intimate association with disease of the heart, and more particularly with hypertrophy of the left ventricle. Dr. Walshe, in a clinical lecture, ventures to call this opinion in question, and upon grounds which appear sufficiently tenable. The connexion between the two diseases has been assumed upon the strength of statistical evidence, by which it is shown that the heart will be diseased in about 46 per cent. of cases of apoplectic seizure. To this Dr. Walshe objects, that before these figures can be considered of value, it requires to be proved that the same proportion of diseased hearts would not appear in a given number of persons dead of other diseases after a certain age. An inquiry into this matter demonstrates that such, or nearly such, a proportion actually obtains. In order to give greater force to his rejection of the received opinion as a demonstrated fact, the author next examines the question in a converse point of view, or in what proportion persons having disease of the heart become subjects of apoplexy. For this purpose he makes use of the following number of cases, selected from different authors:

	Diseases of heart.	Apoplexy.
Ravier	10	1
Louis	45	0
Blakiston	155	14
	210	15

So that $7\frac{1}{2}$ per cent. only of persons labouring under diseased heart for a greater or less number of years, become the victims of cerebral apoplexy. "From this rapid survey," Dr. Walshe continues, "of the connexion of cardiac and cerebral diseases, what inferences can fairly be drawn? None other than that positive asseverations of the power of heart disease to generate brain affections, as a *demonstrated fact*, had better be avoided. On the other hand, I believe that it would be equally unsound to deny totally the existence of any such power on the faith of the numerical comparisons I have just instituted. These are the only comparisons of the sort obtainable at the present hour, but let us not shut our eyes to their serious imperfections. These imperfections are of different kinds. In the first place, some writers are so deeply prejudiced on the question at issue, that their facts cannot be received otherwise than with some quantum of distrust. Read the pages of Andral, and observe how determined he is to find the nexus of an hypertrophied left

* Transactions of the Provincial Medical and Surgical Association, 1848.

ventricle, and cerebral hemorrhage; read those of Rochoux, and note the eager partisanship with which he strives to disprove it. Do this, and I feel satisfied you will, with me, see the wisdom of receiving *cum grano salis* their general conclusions. In the second place, some writers put forward cases where no post-mortem examination took place; these are, under the circumstances, unfit to form elements in the discussion. Thirdly, who can for a moment suppose it to be at all likely that all varieties of heart disease shall have an equal tendency to produce cerebral congestion? That, for example, an hypertrophous left ventricle shall do the same violence to the minute cerebral vessels, if it play upon a constricted aortic orifice, as if it play upon a perfectly free one. Who can suppose that where the radial pulse is small, feeble, unequal, tremulous from highly developed insufficiency of the mitral valve, the blood shall be propelled with excess of force into the small arteries of the brain? Far from this, the contrary appears so fair an hypothesis, that, as we have just seen, an experienced physician regards such insufficiency as an efficient cause of gangrene-like softening of the brain. The whole clinical history of mitral regurgitant disease points to pulmonary, and not to systemic congestion. And, *per contra*, the ascertained effects of tricuspid regurgitation give an air of probability to the view, that this variety of cardiac imperfection may in reality form the true link between congestive affection of the brain and the heart. Whether this be the fact or not, time will show. Meanwhile I think there can be no question that it is deeply unsound to club together cases of such opposite functional tendencies as those we have been noticing, and regard them as a single mass, producing one single definite effect on the brain. Fourthly, an objection to some of the cases figuring in the returns I have given you lies in the fact, that the respective dates of the cerebral and cardiac diseases have not been clearly made out. And again, fifthly, the subject would require revision, were it only for the change recently effected in our knowledge of the morbid anatomy of enlarged hearts. All enlarged hearts were formerly set down as enlarged by muscular hypertrophy. We now know that the available muscular substance may be less than natural in such hearts, encroached upon and impoverished as it is by accumulating fat. And let us not appeal here to clinical experience to set aside the inference deducible from post-mortem investigation. True, the action, felt in the precordial region, of a fat-infiltrated heart may be agitated and forcible; but violence of *impulsion* does not signify power of *propulsion*. In conformity with these views the morbid valvular states (mitral and tricuspid) existing in our patient's heart may be considered mutually subversive in regard of ill-influence on the brain.*

— In the 'London Journal of Medicine'† will be found an essay, by Dr. Richard Quain, on the relative frequency of apoplexy at different ages, in which the reader will find some valuable statistical information.

19. *Cerebral Affections simulating Impending Apoplexy.*—Dr. Marshall Hughes impresses upon the attention of practitioners that the symptoms which are frequently supposed to depend upon determination of blood to the head, and as commonly treated by the routine system of the lancet and purgatives, are frequently caused by a diametrically opposite condition of the cerebral blood-vessels, combined with some peculiar condition of the nerve-fibre, and therefore call for a sustaining and tonic course of treatment. The diagnosis of these cases is admitted to be, in many instances very difficult; but Dr. Hughes considers that the true nature of the affection may generally be ascertained by attention to the following circumstances: 1st. The history of the case, and the particular circumstances under which the symptoms have arisen.

* Lancet, March 17, 1849. † No. I.

2dly. The general appearance of the individual. Dr. Hughes has observed that the parties suffering from this affection are ordinarily either thin, pale, and delicate, as well as weak; or that, though short and stout, they are pale, flabby, and anæmiated. This, however, is far from being without exception, as he has seen persons suffering from it, who presented in many respects the very appearance which is popularly believed to be that peculiar to apoplectic subjects, viz. a short thickset person, a short bull-neck, and a red face. 3dly. The pulse is either small, frequent, and feeble, and is sometimes accompanied with the peculiar thrill of hemorrhage and chlorosis; or, though large and apparently full, is very soft and compressible. Unless the affection is accompanied with diseased heart or arteries, it is never full and at the same time hard and incompressible. The extremities are usually cold, sometimes numb, and not unfrequently purplish from a languid circulation; at other times they are soft, moist, and flabby. The tongue may be loaded, but it is more frequently moderately clean, and more frequently still is morbidly clean, pale, expanded, and indented. 4thly. The symptoms generally affect the patient while walking, or while in the erect or sitting posture; are not increased, but, on the contrary, relieved by lying down; and are often, in fact generally, most troublesome upon first rising in the morning. Ordinarily, though not universally, they are not increased by stooping. 5thly. No heaviness, and no increase of symptoms, is experienced after a full meal. The individual is usually well while in bed. 6thly. Depletory measures previously employed, though they may have apparently relieved the patient for the time, have been uniformly followed, *in a short period (in a day or two at most)*, by a recurrence, and even an increase, of the symptoms, and have usually been adopted without relief. 7thly. The patient has never found himself worse after a glass of wine or other stimulant, excepting perhaps from its immediate and purely stimulant effects; but on the contrary, has usually been relieved, if he has ever ventured upon the experiment of taking it. 8thly. In some cases an anæmic murmur may be heard over the outer valves, or a venous bruit in the neck. These symptoms are important aids in diagnosis. Dr. Hughes properly insists upon the importance of testing the urine, as the coexistence of renal disease might involve a considerable modification in the treatment.*

20. *Epilepsy—Treatment.*—Two of our indigenous plants have been recently recommended in the treatment of epilepsy—the Scutellaria galericulata, by Dr. Evans,† and the Cotyledon umbilicus, by Mr. Salter.‡ The former is given as an infusion (℥ij to ℥viij) in the dose of half an ounce to two ounces. The cotyledon is used in the form of an expressed juice of the latter. Dr. Bullar also speaks favorably of it, and promises the publication of his experience.

[Respecting these remedies, we think it right to inform our readers that the cases given in illustration are too few in number to be worthy of much confidence. We are disposed to agree with Dr. Marshall Hall, that there is no "medicine" specially adapted to the cure of epilepsy, but that the only rational treatment consists in a judicious employment of hygienic measures, including diet, exercise, &c.]

21. *Abscess of the Pituitary Body.*—Dr. Heslop reports the following rare and interesting case:

J. H., an engineer, of active habits, was attacked with acute headache after dancing all night on February 10th, 1848. Previously to this he had exhibited a remarkable tendency to sleep; if he sat down he would immediately

* Medical Gazette, April 20, 1849. † British American Journal, Dec. 1848.
‡ Medical Gazette, March 2, 1849.

fall into a heavy slumber, but the sudden acute pain was the first symptom which attracted attention. After using some domestic remedies the pain was much relieved, but it returned in consequence of error in diet. He became wild and restless, or at other times would lie in a state of semi-stupor, silent, and indifferent to everything. He on one occasion stripped himself, and evacuated his bowels in the centre of his room. Mercury was now given, and leeches and blisters applied, but in spite of this he fell into profound coma, and the pulse became intermittent and fell to 40 in the minute. Wine was now given freely, and he rallied so much that recovery was confidently expected. Two symptoms remained of bad import: one of them was an almost total loss of memory, the other loss of power over the sphincters. He was, however, well enough to go to Dublin, where he was placed under the care of Dr. Stokes. The progress of the disease was marked by emaciation, and further declension of the memory; the orbicularis of the right eye also became paralysed, the acute pains in the head continued to the last. The immediate cause of death was an obscure attack of pleurisy in September.

Post-mortem examination.—Body emaciated; membranes of the brain healthy; at the second pair of nerves was found a soft dark-gray tumour, the size of a walnut, occupying the site of the pituitary body, and extending posteriorly and laterally; it contained a dark-red purulent fluid. It filled up the entire outer peduncular space, extending backwards to the pons varolii, and protruding forward to the fissure of Sylvius. The crura cerebri were pressed outwards. Underneath the tumour a quantity of thin reddish fluid was noticed. The bones, which formed the middle cerebral fossæ were covered with small, sharp, osseous processes.*

22. *Tetanus.*—M. Petit has adduced three additional cases of the successful treatment of this disease by the inhalation of anæsthetic vapours. They were all of the traumatic form. These, taken in connexion with others reported in our former Volumes, exhibit the curative properties of ether and chloroform in a very encouraging light; the amount of success being indisputably greater than has arisen from any other mode of treatment.†

— An additional instance of the recovery from tetanus, under intoxicating doses of alcohol, is also recently reported. The case was that of a child who had received an injury of the finger. (For other cases see "Abstract," Vol. I, 197.)

— A case in which symptoms of chronic tetanus originated in morbid excitability of the true spinal system, is narrated by Mr. Herapath. The source of irritation appeared to be in the alimentary canal, and the affection was removed by the use of powerful purgatives.‡

23. *Cerebro-Spinal Meningitis.*—In connexion with the interesting cases mentioned in our 'Abstracts' of the present Volume (arts. 11 and 12), we may remark that M. Piorry has witnessed, at Corbeil, an epidemic similar to those observed at Strasburg by M. Forget, and in Ireland by Dr. Darby.§

24. *Paralysis of the Serratus Magnus.*—Two cases of paralysis of the muscle, similar to those detailed in a former Volume (II, 211), have recently occurred in the practice of Mr. Choisy. The characteristic symptom is a wide separation of the scapulæ, with tilting upwards of the inferior angles.‖

25. *Convulsive Diseases.*—The pathology and treatment of convulsive diseases has been chosen by Dr. Todd, as the subject of the Lumleian

* Dublin Quarterly Journal, Nov. 1848.
† Revue Médico-Chirurgicale, Dec. 1848.
‡ Medical Times, March 10, 1849.
§ Gazette des Hôpitaux, March 8, 1849.
‖ L'Union Médicale, Dec. 1848.

Lectures for the present year. Under the term convulsions, he refers to three distinct kinds of irregular actions—the choreic, the tetanic, and the epileptic.

The type of the first class is chorea itself; but the same form of convulsion is said to be seen in some particular gouty and rheumatic states, and in white softening of the brain.

The type of the second is tetanus; but the author places in the same class trismus nascentium, and laryngismus stridulus.

The third class includes general and puerperal epilepsy, and general convulsions of children. In proceeding to notice these phases of convulsion in detail, the lecturer commences with—

1st. *Chorea.*—Chorea is sometimes general, or may be acute, and terminate fatally in a few days, as in the interesting case given in our last Volume (VIII, 21), but it is more commonly partial. Of the disease in this the more general form, Dr. Todd proceeds to lay down the leading features. He states that it is seldom symmetrical; that the tongue is protruded in a manner which may be almost considered pathognomonic; and that he has no doubt, if watched for, this peculiar projection of the tongue would be found to precede the more extensive affection. The choreic convulsion is, he also states, frequently succeeded by paralysis, which, when confined to one side, may be readily mistaken for hemiplegia, depending on diseased brain. In a few instances paralysis precedes the convulsion, but it is then, in Dr. Todd's experience, accompanied by the peculiar thrust of the tongue.

Another interesting feature in chorea is the affection of the heart, first pointed out by Dr. Addison. This is, according to Dr. Todd, not evidenced by disturbance of rhythm but of sound. The morbid sound may be either aortic or mitral, most commonly the latter. In seeking to determine the cause of this sound, he comes to the conclusion that it depends upon organic disease of the mitral valve, induced by latent endocarditis, which is the more feasible an opinion, that chorea and the rheumatic diathesis are in some manner frequently associated.

2d. *Tetanus.*—The points to which Dr. Todd directs attention in his second class of convulsive affections, are—1. The little variation in the symptoms. 2. The fact that all the symptoms may occur without any appreciable lesion of the nervous system. 3. The common fact that the disease often appears endemically, as in the West Indies. 4. The general tendency to death by exhaustion and asphyxia.

3d. The third class is represented by *epilepsy*, the general features of which the lecturer takes a rapid glance, as in the cases of tetanus and chorea. He touches also upon the convulsive diseases of children, in their similitudes to the epilepsy of the adult,—that form of convulsions which supervenes upon the introduction or retention of poisonous matter in the blood, and the puerperal eclampsia. In reference to the second of these forms, he mentions the fact now generally known, that when the liver or kidney is in such a state that the elements of bile or of the urine are not separated in their normal quantity, convulsive fits are very apt to occur. This is more likely to be the case in renal disease, and especially in the small contracted kidney of gouty habits.

Puerperal convulsions are divided by Dr. Todd into three classes—those which occur in plethoric primiparæ; those of anæmic women; and lastly, those which occur in women suffering from disease of the kidney, and which are accompanied by albuminous urine.*

26. *Compression of the Carotids in Headache, and other Cerebral Affec-*

* Medical Gazette, April 20.

tions.—This mode of treating pains in the head, which was some years ago introduced by the late Dr. Parry, of Bath, has recently been successfully resorted to by Dr. Augustus Waller, in various cases embracing neuralgic and internal pains in the head, hysteria, and epilepsy. He was first induced to try its effects on others, from having experienced relief from it in his own person while suffering from headache.*

§ II.—*Diseases of the Respiratory System.*

27. *Diagnosis—Vibration of the Thoracic Walls.*—By the term vibration, M. Monneret alludes to the oscillation of the walls of the chest, which is perceived by the hand while a patient speaks or sings. These vibrations are more distinct in the right side than in the left, and in the interior than in the posterior regions. The vibration is propagated from the larynx by the walls of the air-tubes, by the solid elements of the throracic parietes, and by the air contained in the lungs. The larynx is the sonorous instrument, and the phenomena perceptible by the application of the hand, are caused by the propagation of the undulations of sound, through the agency of good conductors. By disease of the chest, the physical conditions of these conductors being modified, the pectoral vibrations undergo changes, which Dr. Monneret has studied for the purpose of discriminating from each other the various alterations of the respiratory organs.

The vibration is increased in pneumonia, and first stage of consumption; it is diminished in pleurisy, emphysema, and pulmonary excavations.

In pneumonia thoracic vibration is invariably increased; and to that degree, that even when the signs furnished by auscultation and percussion are still of a doubtful nature, a positive diagnosis may be obtained—a circumstance peculiarly advantageous in the diseases of infancy, when auscultation is difficult, and its results questionable. The phenomena of vibration are also increased in pulmonary œdema—a fact testified in the last stages of disorders of the heart. In the first period of consumption, when the lung is condensed by the presence of crude tubercular masses, it often happens that auscultation furnishes only negative signs, or increased roughness of the respiratory murmur, so slight as to leave some hesitation in the mind of the observer. In such cases, says Dr. Monneret, the diagnosis is powerfully assisted by the application of the hand, whilst the patient speaks aloud, the vibration being invariably increased in the diseased regions. Again, in pleurisy, attended with the formation of plastic adhesions and false membranes, no fluid being exuded between the lung and the thoracic walls, the vibration caused by the voice is considerably augmented.

It is, on the contrary, diminished or abolished in pleurisy when liquid effusion has taken place. The increase or diminution of the morbid secretion are also marked by corresponding modifications in the transmission of sound to the hand. In pulmonary excavations of some extent, the vibration of voice is decreased or altogether abolished; but, on the margin of the cavities, it is on the contrary increased by the condensation of the lung around the ulceration. In pneumothorax, Dr. Monneret has had four times occasion to study the vibrations of the walls of the chest, and in all cases he found them abolished in the regions corresponding to those occupied by the effusion of air. In pulmonary emphysema, also, the undulations of sound perceptible to the hand are diminished —a fact easily accounted for by the rarefaction of the tissue of the lungs.

Thus, the study of the vibration of the thoracic walls can be made available in the diagnosis of doubtful cases, and forms a valuable addition to the other physical signs of thoracic disease.†

* Psychological Journal, Oct. 1848. † Revue Médico-Chirurgicale, Oct. 1848.

28. *New Instrument for Percussion.*—Mr. Barker has invented an ingenious plessimeter, having a hammer attached to its edge by means of a spring, and moved by a lever, which can be depressed by the forefinger of the hand by which it is applied. The advantages afforded by this instrument are stated to be—

1. The evenness and precision of the stroke. 2. The quickness with which corresponding parts of the chest can be percussed. 3. It can be applied to tender parts, as those denuded by a blister. 4. It can be made available for *transmitted* percussion. By this he means the sound of the stroke, as heard by the ear, applied to the chest.*

29. *Laryngitis—Œdema Glottidis.*—Several cases have been recently recorded by Mr. Everitt,† Mr. Norman,‡ Dr. Barron,§ and others, to illustrate the insidiousness with which the approaches of this fatal disease are sometimes made. It is well to be aware that a patient may complain only of trifling sore throat and hoarseness, and be in other respects in good health and spirits, and yet in the course of an hour or two die asphyxiated; the only appearance after death being infiltration of the cellular tissue surrounding the rima glottidis. In connexion with this subject, we would direct attention to Dr. Gordon Buck's interesting communication, which we have given in a former page (art. 16).

30. *Asthma, Chloroform in.*—Mr. Beardsall has published three cases of asthma, in which the benefit of the inhalation of chloroform was rapid, and marked.||

31. *Chronic Bronchitis, Arsenic in.*—In long-standing cases of chronic bronchitis, with copious expectoration and rapid emaciation, M. Garin has given arsenic with success: the dose is $\frac{1}{25}$ gr.¶

32. *Catarrh, Abortive Treatment of.*—Dr. Lockwood, of the U. S. Navy, speaks of a *new* mode of arresting catarrh, which he has practised "more than a year," and which consists in pencilling the interior of the nares with a solution of the nitrate of silver.** If Dr. Lockwood will consult one of our former volumes (Vol. III, p. 176), he will see that he has been anticipated by M. Tessier, who advised the same thing in 1845.

33. *Pneumothorax, Paracentesis in.*—In a communication to the Medico-Chirurgical Society, Dr. Hamilton Roe endeavours to show that this is not a necessarily fatal disease, and that paracentesis is the best remedy which can be employed for its cure. The author adverts to the fact, that the disease arises from a great variety of causes, and that not unfrequently there is either no alteration of structure in the lungs, or so little as to warrant us in supposing that it might be cured. He relates two fatal cases that have come under his own observation, in which paracentesis was recommended by him, but not performed, and in which, after death, it was found that there was in one instance no perforation of the lung, and no disease of the lung whatever, while in the other the opening in the pleura was very small; and although four small caverns, and a small number of tubercles of inconsiderable size existed in it, there was no organic disease immediatcly fatal, and life might have been at least prolonged, had the lung been relieved from the pressure of the air in the pleura by the operation of paracentesis. The author then refers to several other writers, who have narrated similar cases, and especially to the thesis of M. Saussier, who has shown that the possible causes of pheumothorax are seventeen. The author himself arranges the

* Dublin Medical Press, April 25, 1849.
† Medical Gazette, Feb. 9, 1849.
‡ Prov. Med. and Surg. Journ., Jan. 10, 1849.
§ Dublin Medical Press, May, 10, 1849.
|| Lancet, March 31, 1849.
¶ Revue Médico-Chirurgicale.
** American Journal of the Medical Sciences, Jan. 1849.

varieties of cases under four heads:—1, Those where the air is secreted by the pleura; 2, those where it arises from decomposition of fluid; 3, the cases where it escapes from a distended or ruptured emphysematous cell; and 4, those where it issues from a fissure in the lung. The first three varieties are susceptible of cure, and the fourth is not necessarily fatal. After describing the symptoms distinguishing these different varieties of the disease, the author proceeds to show that the mere presence of air in the pleura is not a source of danger; that the air may in some cases be absorbed, and that it is, therefore, only where air is accumulated in such quantity as to cause great difficulty of breathing, that we are called on to remove it by tapping the chest. The operation, in order to be successful, ought to be performed before the lung has become carnified by compression, and the other lung congested. The objection that the air admitted from without will itself compress the lung, the author meets by saying, "that if the wound made by the canula in tapping be kept open, the lung, if healthy, will expand on being relieved from pressure, and may, if the air can escape as fast as it enters, not only come into contact with the costal pleura, but contract adhesions to it, and obliterate the pleural cavity." In support of this statement, he gives the particulars of a case observed and related by Mr. Benjamin Phillips, in which, by sloughing of the soft parts, the cavity of the pleura was completely laid open, in two intercostal spaces, to the extent of several inches, and where, "at every act of ordinary inspiration, the lung came into close contact with the ribs; at every expiration, the lung retreated to the extent of half an inch from the ribs." The author then refers to the published reports of nineteen cases, in which paracentesis thoracis has been performed for pneumothorax, in ten cases, successfully; and after observing that the question, whether the opening made in the operation should be closed, or kept open, is yet to be decided, but that it seems to him desirable to keep it open when the air enters the pleura through an opening in the lung, and to close it in the other cases. He concludes his paper by relating a case, in which the wound was left open with a favorable result.*

34. *Phthisis Pulmonalis.*—As we have stated, in a former page, the second portion of Dr. Addison's work † is devoted to the pathology and therapeutics of pulmonary consumption; of this we now propose to give a short analysis.

Under the section *Semeiology*, the author gives a view of the anatomical structure of the lungs, in reference to the morphological changes which indicate the existence of disease, and then passes briefly in review the stethoscopic phenomena, which are so familiar to the practised auscultator. The general symptoms are not detailed in a systematic manner, but their variety and importance are displayed in a series of illustrative cases.

In his chapter on the causes of phthisis, the author takes a more extensive range than is commonly done, investigating minutely the most remote derangements of health, in their connexion with that ultimate degeneration of the entire system, of which he considers the pulmonary lesions as only a part. The peculiarity of the author's views, as we understand them, consists in his regarding tubercle, &c., as an insignificant part of the disease—the main part being those retrograde changes which may, according to him, be equally excited by inflammatory products, or those portions of lung which are rendered useless in the disease termed atelectasis pulmonum (see p. 200). These views are expressed in general terms in the following deductions:

"1st. Anatomical changes remain after the cure of wounds and diseases, which possess more or less of permanency; and though not evolving symptoms, they affect the future health of the patient.

* Lancet, April 21. † On Healthy and Diseased Structure, 8vo, 1849.

"2d. These anatomical states are *veræ causæ* of differences of constitution, because the aggregate expression of the whole cannot be the same when important parts are altered; and in the lung they are predisposing causes of consumption, because from an universal law, the nutrition of natural textures, in contact with unnatural states, is disposed, upon slight events, to go back to the general, rather than to keep up the special form."

The author's remarks on the treatment of phthisis are deserving of attentive perusal. The chief stress is, of course, laid on the prevention of the disease; but when formed, he believes that it may be arrested. A cure, i. e. removal of tubercle, closure of cavities, &c., he does not believe possible. He appears to have little faith in any of the reputed remedies for consumption; but advises the treatment of every case on its own merits, and on principles derived from a careful consideration of the antecedents of the pulmonary degradation.

Dr. Madden, of Torquay, has recently published a treatise on phthisis, entitled 'Thoughts on Pulmonary Consumption.' This volume is divided into two parts, the first being devoted to the chemistry and histology of tubercle; the second to the consideration of the forms and varieties of its localization in the pulmonary structures.

In his account of the chemistry of tubercle, the author has availed himself of the researches of Simon, Preuss, and others, but has added nothing on his own part. This subject has already been amply treated of in our foregoing 'Reports on Chemistry,' by Dr. Day. The tubercle-cell is found by the author to be filled with granular matter, but to be destitute of nuclei; a fact which he conceives is negative of the opinion entertained by Dr. Addison, that they are merely metamorphosed epithelium-cells. Their anatomical situation he believes with Addison to be the intervesicular areolar tissue.

In a subsequent section, Dr. Madden enters minutely into the consideration of the physiology of nutrition. To be able to explain abnormal nutrition, it is evidently necessary to understand the process in a state of health. This the author enables the reader to do at a very little expense of time. In his endeavour to explain the production of tubercle, he dwells at some length on the importance of the red globules, as vitalizers of the liquor sanguinis, and finding from the analysis of the blood of phthisical patients, that it is deficient in these globules, he believes that we have in this a "very essential fact in the production of tubercle." That it is not all that is requisite he is compelled to admit, from the fact that in chlorosis we may have deficiency of the red particles to a great degree, without any tubercular degeneration as a sequence.

Dr. Madden ranges himself with the large majority of pathologists who believe in the identity of tubercular and scrofulous disease.

The forms and varieties of phthisis acknowledged by the author are much the same as those of other writers. What is termed acute phthisis, he regards as either pneumonia in the scrofulous habit, or a peculiar form of bronchitis.

In his chapter on treatment the reader will find the results of matured reflection. The author repudiates specifics, and trusts to a rational system of medication founded upon the cachectic nature of the disease. In the acute form, he advises antiphlogistics, but more cautiously administered than in the inflammation of healthy subjects. Of the various remedies for phthisis, he places the greatest confidence in cod-liver oil, but at the same time he deprecates its being given as a specific, insisting most judiciously on the necessity of the simultaneous employment of other rational measures, both therapeutic and dietetic.

35. *On Hæmoptysis as a sign of Phthisis.*—Dr. Parkes has recently turned his attention to the symptomatic value of hæmoptysis in phthisis pulmonalis,

and compares his observations with those of Dr. Walshe. These fully confirm the general opinion as to the serious import of this symptom.*

36. *Antagonism of Phthisis and Intermittent Fever.*—This question is reviewed at length in a recent number of the 'Edinburgh Medical and Surgical Journal.' The first person in this country to notice the mutual incompatibility of the two diseases was Dr. Harrison, of Horncastle; subsequently Dr. Wells read a memoir on the same subject, and, still later, Dr. Southey published a memoir, in which the testimony on either side is fairly weighed; still more recently, the question has been renewed by MM. Boudin, Horace Green, and Hellft.

The opinions expressed by these writers are various. Dr. Wells believed that he had established the point incontrovertibly; Dr. Southey, on the other hand, alleged that he had utterly failed to establish its truth. M. Boudin takes the side of Drs. Harrison and Wells, as will be seen by the following deductions:

1st. The localities which generate intermittents are distinguished by the comparative rarity of pulmonary consumption and typhoid fever.

2d. The localities in which these latter diseases prevail are remarkable for the rarity and mildness of the intermittents contracted on the spot.

3d. Draining, while it causes the disappearance of miasmatic diseases, seems to dispose the organism to a new pathological condition, in which pulmonary consumption becomes a conspicuous disease.

Dr. Green in his 'Observations on the Influence of Malarious Atmosphere on the Prevention and Cure of Phthisis,' adduces a considerable number of cases illustrative of the practical application of the above views; in several of these, the benefit derived from sending consumptive patients into malarious districts appears to have been indisputable, whatever may be the real explanation of the phenomena observed.

Dr. Hellft, whose essay on the Antagonism of Marsh Fevers and Consumption was published as lately as last year, takes the opposite side of the question, and like Southey refuses to admit the protective power of malaria. He bases his opposition on the fact that in numerous localities mentioned by him, the two classes of disease are equally prevalent.†

37. *Cod-liver Oil in Phthisis.*—Confidence in the advantages to be derived from the exhibition of this oil in pulmonary consumption is becoming more generally diffused among the profession. It is not pretended that it has the power of *curing* the disease, but that it possesses a power of suspending its ravages at all periods, to a degree not possessed by any other medicine, scarcely admits of doubt. We beg the particular attention of our readers to the paper by Dr. Williams which appears among our extracts, as it records the experience of a gentleman in extensive practice, and who has made pulmonary diseases an especial study.

We are still in want of the record of cases on a more extensive scale, and we have imposed upon ourselves the task of collecting and collating information on the subject. In this work we earnestly solicit the aid of our readers, who will do us an especial favour by furnishing us with notes of their individual experience.

38. *Inhalation of Carbonic Acid in Phthisis.*—The breathing of carbonic acid has been recommended by some Russian physicians, as a successful mode of arresting phthisis. This subject would scarcely be worth notice, were it not for the observation of Guillot (Abstract, Vol. I, p. 203), that the deposit of carbonaceous matter in the lungs operates as a check to the further deposit of tubercular matter.‡

* Medical Gazette, March 30, 1849. † Edin. Med. and Surg. Journal, April 1849.
‡ Encyclograph. Médicale, Dec. 1848.

§ III.—*Diseases of the Circulatory System.*

39. *Treatise on Diseases of the Heart.* By Dr. Hope.—This work has reached a fourth edition, in which the reader will find improvement, both in arrangement of matter and in form. Certain omissions have been made, which the present editor has thought advisable, but these have been confined to subjects of controversial interest, no longer requisite, and to the plates. The latter will be regretted by many; but when it is stated that by the procedure the expense of the work is much diminished, the disappointment will doubtless be found to be atoned for by the majority. The additions consist of notes and cases left in MS. at the time of the author's death. We consider it needless to say more in praise of a work which has long been considered the best of its kind in the English or any other language. It is only requisite to state, that the present edition, in the points alluded to and in beauty of type, must be considered a great improvement upon its predecessors.*

40. *Diagnostic Value of Frémissement in Diseases of the Heart.*—It is a generally received opinion that the frémissement which is perceptible at the apex of the heart, and accompanies the diastole, is significant of narrowing of the mitral orifice. Professor Jaksch, of Prague, has ascertained the truth of this as a general rule, but has also met with cases in which it accompanied insufficiency of the aortic valves. It is therefore necessary, in forming a diagnosis, to have recourse to the characters of the pulse, which in aortic regurgitation is full and bounding, in contracted mitral valve, small, irregular, and intermitting. The pericardium sometimes gives rise to vibrations which may be mistaken to be of valvular origin, but they may be distinguished by a want of rhythm and regularity, and by their modifications under change of posture. M. Jaksch has met with vibrating frémissement under the following circumstances: 1. In narrowing of the aortic orifice. 2. In dilatation of the aorta immediately above the valves. 3. In dilatation and in true aneurism of the ascending aorta. 4. When the aortic orifice is obstructed by tendinous adhesions. 5. In insufficiency of one or more of the sigmoid valves. 6. In rupture of the cordæ tendineæ of the mitral valve.†

41. *Polypiform Concretions of the Heart.*—Dr. Bellingham has published some observations on the above morbid appearance, in connexion with two cases which came before his own notice. After a careful description of the various forms of these concretions, and a detail of the symptoms, the author recapitulates his views in the following series of conclusions:

1st. That concretions occasionally form in the cavities of the heart, during life, of such a size as to impede the action of the valves, to obstruct the passage of blood through this organ, and to occasion the death of the patient.

2d. That these concretions, although termed polypi, have no analogy whatsoever with polypi, either in appearance, composition, or mode of development.

3d. That certain diseases of the lungs or heart, as bronchitis, pneumonia, endocarditis, valvular disease, &c., sometimes owe their fatal termination to the formation of these concretions in the cavities of the heart.

4th. That the concretions which form during life in the cavities of the heart may consist either of fibrine or of lymph, or of lymph coated with fibrine.

5th. That the concretions composed of fibrine are most frequent upon the right side of the heart, but may occur on both sides; and that the concretions

* Treatise on the Diseases of the Heart and Great Vessels; by James Hope, M.D. 4th edition.

† Vierteljahr: für die Pratische Heilkunde.

which consist of lymph, or of lymph coated with fibrine, are usually found only on the left side of this organ.

6th. That fibrinous concretions, whether they occur in amorphous masses, or in stratified layers, are deposited from the blood which circulates through the heart. That concretions composed of lymph, whether this forms the substance of the mass, or merely its nucleus, are deposited by the vessels which supply the heart itself with blood.

7th. That fibrine, whether it constitutes the substance of these concretions, or whether it is deposited in concentric layers in the sac of an ancurism, is perfectly unorganized, and perfectly incapable of becoming organized. That lymph, on the contrary, is an organizable substance, and quite distinct from fibrine, with which it is still confounded by some physiologists.

8th. That where pus has been found in fibrinous concretions contained in the heart, its presence is to be regarded as the result of phlebitis, not as a product of inflammation in a substance which is quite unorganized, and consequently incapable of undergoing such changes.

9th. That increased extent of dullness in the precordial region, confused or irregular action of the heart, intermission or irregularity of the pulse, or an abnormal murmur accompanying the heart's sounds, are not necessarily symptoms of the development of a polypous concretion in the cavities of the heart.

10th. That no means are known by which polypous concretions in the heart, once formed, can be dissolved; consequently, the administration of substances which render the blood more fluid, or which are supposed to be capable of dissolving them, can have no useful effect.*

42. *On Disease of the Heart and Large Vessels as a cause of Sudden Death.*—The 'Archives Générales' contain a series of papers by M. Aran, the object of which is to determine the exact influence of certain diseases of the heart and great vessels in the production of sudden death, and to ascertain what alterations of structure are most prone to be followed by that event. The principal divisions of sudden death from heart disease are those arising from rupture, and those without rupture, the relative proportions of which the author seeks to determine by statistical data. Of 202 cases of sudden death, he finds 88 cases with, and 114 without rupture. The 88 cases of rupture are thus distributed:

Rupture of the thoracic aorta occurred in				45	cases.
,,	,,	left ventricle	,,	25	,,
,,	,,	abdominal aorta	,,	7	,,
,,	,,	right ventricle	each ,,	3	,,
,,	,,	left auricle			
,,	,,	pulmonary artery	,,	2	,,
,,	,,	both ventricles	each ,,	1	,,
,,	,,	right auricle			
,,	,,	vena cava			

The author does not accord a separate consideration to each of these forms of rupture, but passes on to show the fallacy of the opinion which attributes death in rupture of the central organs of circulation, to the hemorrhage which takes place. He makes it clear that, with the exception of certain cases in which rupture occurs into the large serous sacs, or into the mucous canals, the loss of blood is seldom sufficient in itself to cause death. This event, he believes to be due to the embarrassment of the heart or lungs by the extrava-

* Dublin Medical Press, Feb. 1849.

sated blood, as is seen more particularly when the hemorrhage takes place into the pericardium, when a few ounces are sufficient to extinguish life by impeding the heart's action.

The cardiac lesions producing death without rupture are thus distributed:

Disease of the muscular substance	19
,, aortic valves	25
,, mitral valve	6
,, several together	3
Malformations of the heart	10
Disease of the aorta and pulmonary artery	17
,, coronary arteries	1
Pericarditis	4
Adhesion of the pericardium	9
Disease of the aorta and its valves	9
,, ,, and other valves	6
Adhesion of the pericardium, with other lesions	4
	113

The author studies each of these divisions separately, but as the essay is not completed, we must reserve the remainder for a future volume.*

43. *Aneurism, Dissecting.*—An additional case is recorded by Dr. Peacock; as is usual, death occurred from rupture into the pericardium.†

44. *Aneurism of the Coronary Artery.*—The same writer reports a case of this uncommon form of aneurism, premising it with the account of the only two cases he is able to find: one published in the 'Bibliothèque Méd.,' 1812; the other in the 'Archiv. Gén de Méd.,' 1843.

A man, æt. 51, a butcher, admitted into the Royal Free Hospital, in December, 1847, labouring under influenza, formerly of irregular habits. When examined, he was much collapsed, with severe cough; pulse 144, feeble; tongue furred. Auscultation revealed the crepitation of the prevailing epidemic. He was cupped between the shoulders, and took ipecacuanha, with compound spirit of ammonia and paregoric. On December 4th he was slightly better, and for three days continued to improve, but he then became more torpid and feeble. A more stimulating treatment was substituted, together with a blister to the chest. On the 12th he complained of pain in the left side of the chest, pulse 120, intermittent. There were loud sonorous rhonchi; and in the region of the heart a peculiar sound like that of beating egg with a spoon. This disappeared next day, when he died.

Post-mortem examination. In addition to emphysema of the lungs, the pericardium was found to be distended with sero-purulent fluid, with lymph of soft consistence. At the upper and outer part of the left ventricle, there was a protuberance the size of half a walnut, which was found to be an aneurism of the coronary artery. The cavity of the aneurism was filled with coagulum; the other artery was ossified.‡

45. *Aneurism of the Left Ventricle.*—A case of sacculated aneurism of the left ventricle has been recently met with, and described by Dr. Halliday Douglas. There were two distinct sacs, the size of a walnut, one empty, the other filled with a fibrinous clot. There were no symptoms during life to indicate this unusual condition of the ventricular walls.§

* Archives Générales, Feb., March, 1849.
† Medical Gazette, Nov. 3, 1848.
‡ Edinb. Monthly Journal, March, 1849.
§ Ibid., Feb. 16, 1849.

§ IV.—*Diseases of the Chylopoietic System.*

46. *Mercurial Stomatitis—Treatment by Creosote Gargles.*—Dr. Faulcon, U.S., speaks of the very decided and rapid benefit he has seen from this method of treating profuse salivation. The proportions of the gargle are—creosote ʒss, sage-tea Oj.*

—Dr. Maxwell informs us that he has been very successful in ptyalism with small doses of tartar emetic frequently repeated.†

47. *Liver, Abscess of, bursting into the Pericardium.*—The following exceedingly rare termination of hepatic abscess occurred to Dr. Bentley, by whom it is recorded:

A man, æt. 29, came under Dr. Bentley's care, at the City of London Hospital for Diseases of the Chest, on the 29th of June, 1848. He was steward of a merchant vessel, and returned home from Madras and Trinidad in September 1847. He was then quite well, and had been so during the sixteen years he had been at sea, except that he had had fever and ague at Hong Kong eight years before.

In December he went down to Folkstone, and took cold, but was not materially indisposed until January, when he was suddenly seized whilst walking with severe pain to the right of the xyphoid cartilage, difficulty of breathing, followed by cough and expectoration. These symptoms increased, and the dyspnœa prevented his lying down. After six days they had become so urgent that he was bled from the arm, and confined to his bed for six weeks; repeatedly leeched on the epigastrium and over the right shoulder-blade. About the beginning of March he had recovered sufficiently to be able to walk out, and so continued for three months. In April he had severe rigors and bleeding from the nose, which repeatedly recurred; he suffered from severe pain in the abdomen, at the lower part of the chest, and in the region of the heart, and had also profuse perspirations. From this time he was unable to lie down in bed. He had no cough. In May he had occasional vomiting of blood.

When first seen by Dr. Bentley, in June, he complained of pain in the spine, vomited his food, and had frequent retching when the stomach was empty; his bowels were confined; he was incapable of lying down in bed, but slept with tolerable comfort when propped up, and inclined somewhat to the right side. He had but little cough, but profuse perspirations, and was subject to occasional attacks of faintness; he was thin and much anæmiated. The resonance on percussion was defective over the whole chest, but especially dull on the left side; the respiratory murmur was natural over the whole extent of the right lung, although somewhat defective on the left. The costal cartilages in the precordial region were unusually prominent, and the dull space was much extended. The extent over which the pulsation of the heart could be seen and felt was greater than natural, and the pulsation had a peculiar wave-like motion; the pulse was regular, but feeble; there was no murmur with the heart.

There was no material alteration in his symptoms until the 13th of August, when about six in the evening he was suddenly seized with retching and excruciating pain in the pit of the stomach; these symptoms continued unabated until seven o'clock the following morning, when he died. Being all along doubtful as to the nature of the case, he was seen upon two or three occasions, whilst under Dr. Bentley's charge, by Drs. Jeaffreson and Peacock, who

* Philadelphia Medical Examiner and Provincial Journal, May 2, 1849.

† Medical Times, Nov. 4.

hazarded the conjecture that it might be abscess of the liver, circumscribed diaphragmatic pleurisy, or mediastinal abscess. The post-mortem was performed twelve hours after death.

The body was much emaciated; there was considerable prominence in the epigastrium, with a deep-seated sense of fluctuation on the left side of the xyphoid cartilage; prominence also of the lower part of the sternum, and of the lower sternal cartilage. Upon removing the sternum, the chest was filled by an enormously distended pericardium, containing not less than four pints of sero-purulent fluid. The heart was of natural size, and the attached and reflected pericardium was covered with a thin, pale, soft, and granular layer of lymph; at the apex the reflected pericardium was extremely thin, and was protruded inwards by the pressure of an enormous abscess in the liver; at one point of the projecting portion there was a small nipple-like prominence, with an aperture in it, from which, when the left lobe of the liver was compressed, a little thick purulent matter exuded. The left lobe of the liver was almost entirely occupied by a large abscess, bounded by a thick layer of very dense, almost cartilaginous tissue, and lined by rough and thick false membranes. The fluid in the cavity of the abscess was extremely thick, and pale yellow or whitish. The liver itself was very large, extending so far as the umbilicus, and quite over to the left side; much congested in the hepatic venous system, and adherent above to the diaphragm. The lungs were both compressed, the right attached by loose cellular adhesions, the left free; both sparingly crepitant, but free from disease. The heart was healthy.*

48. *Biliary Calculi.*—M. Martin Solon has revived Durand's treatment of biliary concretions. This consists in the exhibition of turpentine and ether, in a mixture consisting of two parts of the former and one of the latter. The dose is two drachms.†

— M. Capezzuoli draws attention to a species of concretion occasionally found in the intestinal canal, which has been erroneously considered as biliary calculus. A more minute examination has convinced him that they were pieces of solidified fat. The patients were in the habit of using oil freely in their food, portions of which had, he presumes, escaped the emulsionizing action of the pancreatic fluid. (See Pancreatic Juice, in the Report on Anatomy in the present Volume.)‡

49. *Pancreas, Symptoms of Disease of.*—Professor Siebert, of Jena, enters into an analysis of the symptoms of pancreatic disease in fifteen cases, which were concluded to be examples of that disease *by the method of exclusion.* These cases presented in common the following characters: 1. Pain in the epigastrium deeply situated and increased on pressure, and in the exacerbations radiating towards the back and thorax. 2. Pain, oppression, and burning eructations or vomitings of watery matter at the time of the duodenal digestion, i. e. a few hours after taking food, accompanied either by constipation or diarrhœa, but with little alteration of the primary digestion, or of the state of the tongue and appetite. 3. Emaciation, followed sooner or later by anæmia, while the quantity of nutritious food consumed was considerable. 4. Pulsation in the epigastrium, often visible, increased by pressure, and occasionally accompanied by an arterial bruit, communicated to the stethoscope. This sign, when others harmonise with it, is supposed by the author to be pathognomonic of disease of the pancreas.

Professor Siebert has never found sugar in the urine of persons labouring under the above symptoms, nor has he generally found these symptoms to be

* Medical Gazette, Dec. 22, 1848. † Gazette des Hôpitaux, March 10, 1849.
‡ Gazetta Toscana, Nov. 1848.

present in diabetic patients. His views, therefore, afford no support to Bouchardat's theory, which ascribed the diabetic condition to disease of the pancreas.*

On these opinions, the editor of the 'Edinburgh Monthly Journal' remarks as follows: We need scarcely point out that the *method of exclusion* is a very slender protection against error in so bold an assumption as that of Professor Siebert. Without, however, adopting his speculative diagnosis too hastily, we think the above group of symptoms worthy of attention. Individually they have long been known as characterising that protean disorder, dyspepsia; and it is not at all improbable that they may be more or less closely connected with the derangements of an organ which every day teaches us more and more to regard as of the greatest consequence to the assimilative functions. The epigastric pulsation, to which such importance is attached in the paper before us, is a not unfrequent symptom of deranged digestion; but it certainly occurs, as we can attest from repeated observation, entirely apart from the other symptoms mentioned by the author, and apparently without any other organic cause. Dr. Parry, it is well known, ascribed it to the pressure on the aorta of fæces in the transverse colon; and various other theories of its production have since been given to the world. That of the author seems, on the whole, to have a good deal in its favour. "When we think," says he, "that the pancreas is supplied by numerous and large arteries springing from the aorta on which its head rests, and that it is furnished with nerves from the same plexus which surrounds the aorta, we may consider the pulsation in question as bearing the same relation to irritation of the pancreas, as the pulsation of the regions over an inflamed parotid, or a vascular struma (inflamed goitre)."

50. *Dysentery.*—Dr. Irving confirms the value of a practice first proposed by Dr. O'Beirne, of giving large injections, by means of a tube passed into the flexure of the colon. He observes that in dysentery much of the tenesmus and purging is kept up by fecal accumulation at the caput cæci, which cannot be removed by purgative medicine. He narrates cases which have been cured by the daily use of copious warm water enemata, without other means.†

51. *Obstruction of the Bowels from peculiar Causes.*—Dr. Donovan states that he has recently met several cases of obstruction of the bowels, occasioned by a large mass filling up the rectum, and incapable of being passed through the anus by the ordinary process of defecation.

He attributes the obstruction to the use of diseased potatoes, and states that he has met with several cases. In four which occurred in one week, in dispensary practice, he found in all the symptoms alike, and gives the history of one, as an example:

"Patrick H—— applied at the Skibbereen Dispensary. He was then labouring under severe tenesmus and bearing-down pain, and, to use his own words, "had a bowel complaint on him for four days, and could pass nothing but red blood." He further stated, that "he could make no water, and that there was a lump in his seat."

This description of his disease, and the fact that his attention had been directed to the subject by a friend, Dr. Fitzgibbon, who detailed the particulars of two similar cases that occurred in his practice a few days before, led him to make an examination, and he discovered, at the orifice of the gut, a large solid mass. The parts around the anus were puffed out, and the sphincter was distended to the utmost.

* Hæser's Archives, April 22, 1848; and Monthly Journal, May 1849.

† Edinb. Medical and Surgical Journal, Jan. 1849.

It was evident that mechanical means could alone relieve the sufferer, and on using the handle of a pewter spoon for the purpose, a large quantity of consolidated potato-skins, with some portion of the substance of the tubers, and coarse Indian meal, were dislodged. The retention of urine was immediately removed, and the other symptoms relieved, but recurred, and required for four successive days the same treatment, together with the administration of large enemata of warm water, which assisted in bringing down and breaking up the firm mass that filled the intestine.

These concretions were almost entirely formed of potato-skins, and were consequent on the use of diseased tubers, in which the peel and farinaceous substance of the potato are so intimately blended together, that it is impossible to detach the former in the ordinary way, and large quantities of the skins are consequently swallowed, and, accumulating in the bowels, form the obstructing masses described.

Dr. Donovan remarks :—" It is of much importance that a correct diagnosis should be formed in this disease, as, from the similarity of some of the symptoms, it may be confounded with dysentery, and lead to very unavailing or even mischievous treatment.

" The straining at stool, the evacuation of blood from the ulcerated lining of the rectum, and the retention of urine, that may be mistaken for suppression, are all symptoms which are exhibited by the malignant dysentery that has raged for the last two years, and may lead to an incorrect diagnosis of the disease that I am alluding to ; but there is one diagnostic character that, once observed, cannot be mistaken, and which clearly points out the nature of this complaint,—I allude to a very peculiar sour smell from the body of the patient, like that exhaled from fermenting potato-skins ;—a substance used by weavers in the manufacture of coarse linens. Whenever this smell is recognised in cases exhibiting the other symptoms that I have described, an immediate examination of the rectum should be made, and mechanical means should be immediately employed to unload the gut, as any other plan of treatment would be perfectly useless."*

§ V.—*Diseases of Variable and Uncertain Seat.*

52. *Acute Rheumatism, Nitrate of Potass in.*—Dr. Basham, who confirms the value of this mode of treating rheumatism, founds his belief on the following facts :—1st, that in acute rheumatism, as in other inflammatory diseases, the most important changes in the composition of the blood are the increased quantity of fibrine, and the deficiency of the saline ingredients ; 2d, that where this state of the blood exists there is a special disposition to the deposit of fibrine, and the formation of adventitious tissues ; while in diseases in which the fibrine is deficient, and the salts in excess in the blood, the blood does not coagulate, and hemorrhages of a passive character occur ; and, 3d, that although, as his own experiments have satisfied him, saline solutions have not the power of dissolving coagulated fibrine, yet certain salts in solution, mixed with the blood at the moment of its escape from the body, possess the property of suspending or retarding the separation of the fibrine. He next inquires whether any therapeutic principle can be derived from these facts, and proposes the question, whether saline remedies, largely employed, may not suppress the tendency to the fibrinous exudation, or retard it, so as to give time for other remedies to diminish the proportion of fibrine present in the blood. With reference to this question, he alludes to the observations of

* Dublin Medical Press, Nov. 1848.

several physicians on the use of nitrate of potash in acute rheumatism, and details his own experience of its effects. He gives one, two, or three ounces of nitrate of potass, largely diluted (in two quarts of water), in the twenty-four hours. In the majority of cases no obvious effect is produced on the force or frequency of the pulse, the digestive functions, or the quantity of urine excreted. But the urine always acquires a high specific gravity, and nitrate of potass may be detected in it. The swelling, heat, and pain of the joints affected with rheumatism are relieved in a most marked degree, even when no other remedies are employed at the same time. There is a certain amount of exemption from cardiac complication; and cardiac inflammation, when present, is more amenable to remedies. In a case which the author relates he examined the blood of the patient before the commencement of the saline treatment, and again after this treatment had been continued for some days. In the first instance it was buffed and cupped, the fibrine was in excess, and the salts were deficient. After the administration of the nitre there was no buffy coat, the proportion of fibrine had diminished, and that of the salts greatly increased. The author presumes, therefore, that while the internal use of the nitrate of potass assisted to restore the proportion of the saline constituents, the other treatment employed tended to lessen the excess of fibrine. Some remarks of Mr. Gulliver have led the author to investigate the effects of the external application of saline matters to parts affected with rheumatism. His experiments have been principally made with nitrate of potass. In chronic rheumatism he has used the iodine of potassium, and in gout the bibasic phosphate of soda. He applies the saline substance by means of the spongio-piline, a portion of which, large enough to envelope the part affected, having been moistened with water, the salt employed is sprinkled in powder freely on the spongy surface; it is then applied to the part, and secured with a roller. In numberless instances, by this simple treatment, he has witnessed the most palpable and instant relief to the local inflammation. Constitutional remedies were employed at the same time, but the relief was proved to be due to the saline applications, by the fact, that where several joints were affected, only those were relieved to which the salt was applied. At the end of the paper the author gives an abstract of 79 cases of acute rheumatism, showing the results of treatment, and other particulars.*

— M. Martin Solon is also a great advocate for the treatment of rheumatism by nitre. He carries the dose up to two ounces per diem, an amount which many might consider highly dangerous; but it must be remembered that the salt is given very largely diluted. The same testimony is also borne by M. Corneliani.†

— For an excellent *résumé* of the principal modes of treatment in acute rheumatism, we refer the reader to art. 22 in the present Volume. We also call his attention to art. 23, in which it appears that lemon-juice is occasionally found available in the more chronic forms of the disease.

53. *Gout and Phthisis, reputed Antagonism of.*—Dr. Garrod has disputed the opinion entertained by some, that the gouty principle is antagonistic to the tubercular, and who have on this hypothesis recommended the endeavour to establish the gouty habit as a preservative against phthisis. The author shows the fallacy of the above opinion, by adducing a case directly in point, of a young man eminently gouty, who nevertheless became the victim of phthisis. The experience of the majority of practitioners will, we think, equally discountenance the opinion of antagonism between the two states of system.‡

* Medical Times, Dec. 2, 1848. † Annali Universali, March 1847.
‡ Medical Gazette, Dec. 8, 1848.

54. *Diabetes, on the Gastric Origin of.*—Dr. Macintyre has contributed a paper to the Medico-Chirurgical Society, in which he traces the connexion now generally acknowledged, between diabetes mellitus and some morbid conditions of the organs of primary assimilation.

The author commences his paper with some general introductory remarks on the unsatisfactory results of anatomical researches in diabetes, which have hitherto thrown so little light on the nature of this obscure affection, that a theory founded almost solely on a consideration of the phenomena observed during life, in which the assimilating processes are supposed to be impaired or perverted, has, from the earliest times, received very general assent. Adopting this view of its proximate cause, he then proceeds to relate three fatal examples of the disease which fell under his own immediate observation, and in which post-mortem appearances were met with in the stomach, strongly significant of that organ having been, at some period, subjected to a special morbid action. The first case was that of an adult male, in whom the disease was not recognised till about a year before the author was consulted. The symptoms were highly characteristic. Death took place under a state of obstinate constipation. On a post-mortem inspection, among other lesions, the left upper lobe of the lungs was found broken down in its centre into a softened purulent mass, more like the disorganization from unhealthy inflammation, than a tubercular vomica. The stomach was greatly dilated, and its walls very thin; its cardiac extremity presented a dark appearance, and its lining membrane was softened. The blood-vessels of this viscus were unusually large and turgid. The kidneys were much enlarged, and double their ordinary weight. The right freely admitted a wax injection; the left exhibited, under the microscope, the natural structure. The subject of the second case was also an adult male. He had been getting thin and weak for some months before he was seen by the author, and died, labouring under an extensive aphthous affection of the mouth and fauces, accompanied with symptoms of intense irritation of the stomach, pain at the epigastrium, eager craving for cold drinks, and incessant vomiting. The real nature of the complaint was not detected till two days before death, when the urine was found to be profuse, limpid, of specific gravity 1038°, and strongly saccharine. On inspection, the organ presenting the principal lesions was the stomach, which was remarkably capaeious, and on being lifted up for examination gave way posteriorly at its large curvature, allowing the escape of a dark-coloured fluid into the abdominal cavity. Its walls around the rent thus caused were very soft, and throughout the entire splenic division reduced to extreme tenuity, being in some places almost diaphanous. The subject of the third case was a little girl, only five years old, who had been for some weeks under treatment in the country, for what appeared to be remittent fever, and was brought to town for advice, when the urine was found to be very copious, of great density, the specific gravity ranging between 1040° and 1045°, and abounding with sugar. The constitutional symptoms corresponded with the character of the urine, and the child sank rapidly, and died exhausted. On dissection an unusual dryness of all the tissues was observed. The kidneys appeared to be perfectly sound. No tubercles could be discovered in the lungs, but a coffee-coloured fluid, to the amount of several ounces, occupied the lower part of the pleural sac. When this fluid was removed, the cavity of the chest was seen to communicate with the stomach by one large irregular hole in the walls of that viscus, and several smaller perforations in the diaphragm. The openings in both corresponded exactly, but without any adhesion between the opposed surfaces. The structures bordering on the perforation were black, ragged, and thin, and the parietes of the stomach, throughout its whole

splenic division, partook more or less of this attenuation. The fluid removed from the chest was inodorous, and found to consist chiefly of blood, epithelium, and textural detritus. After briefly remarking on the treatment of these cases, the author goes on to review the appearances found on dissection, dwelling principally on those observed in the stomach—viz. the extreme attenuation of the coats of the organ in all the cases, and the lacerations and perforation in two of them—conditions allying them to each other, and denoting, apparently, but different stages of a kindred disorganization. In considering the nature and import of these changes, the great question to be solved is, whether they are to be regarded as pathological lesions, or cadaveric changes. As respects the actual perforations in the last case, the author considers them to be post-mortem consequences. But though, under this view of their production, they might naturally be classed with the perforations or erosions which were attributed first by John Hunter to the digestive or solvent action of the gastric juice, he feels more disposed to rank them with those analogous changes which, since Hunter's time, have been noticed to occur in connexion with various diseases, some of decidedly gastric character, but the greater number not primarily referable to the stomach. The facts thus brought into notice add much to the interest of the subject, and, considering the force of various objections urged against the opinion of the great physiologist, would seem to lead us to take a modified view of the theory of solution, and regard the successive changes from softening to attenuation, and from attenuation to complete loss of substance, as the work, not of a gastric secretion in a normal and healthy state, but as the effects either of that fluid in an altered or vitiated state, or of other products secreted by, or generated in, the stomach, and endowed with corrosive properties, which do not come into full play till after death, when the tissues are already enfeebled and wasted, and no longer defended by the vital forces. In diabetes, the sugar existing in the primæ viæ suggests a fertile source of products possessing most active qualities. Those which we are most acquainted with are the lactic and oxalic acids, both of them hostile to the constitution, the latter eminently so. It is admitted, however, that for the confirmation of these views and opinions, though they are entertained by high authorities, the evidence of demonstrative chemistry is still wanting. How far they are countenanced by the limited number of facts brought forward in the paper, the author leaves to be determined by future and more extended observations.

— In the discussion to which the reading of this communication gave rise, Dr. Copland mentioned that he had known several cases of diabetes which had been arrested by the exhibition of ox-gall and creosote.*

55. *Source of the Sugar in Diabetes.*—We may take the present opportunity of calling attention to a most important essay on the source of sugar in the animal economy, by Dr. Bernard, and one which we conceive will tend to a considerable modification in our views of the pathology of diabetes. The subject being important, we give the memoir in detail, as we translated it for the 'Provincial Medical and Surgical Journal,' in which the first English notice of it occurred.

The author commences by noticing that sugar is not only extensively distributed throughout the vegetable kingdom, but exists also in animals. Vegetables do not find it ready made in the earth, but form it by some power of internal organization. The question which the author wishes to determine is, whether the same is the case with animals, or whether the sugar found in their bodies is exclusively the product of their vegetable ingesta.

* Reported in Lancet.

The author, with this view, observes that the kinds of sugar which enter into the food of animals are—1. Cane sugar, as is found in the sugar-cane, beet-root, carrots, &c. 2. Grape sugar, such as exists in grapes and other saccharine fruits. 3. Sugar of milk.

He does not in this place trace the distinctive characters of these forms of sugar; he states only that as certain alimentary substances are known to furnish large quantities of sugar, we may consider them as the source of the sugar which we find in the blood or other animal fluids. It is admitted that sugar is found in healthy blood after the ingestion of sugar, or matters convertible into sugar; but chemical facts teach us, on the one hand, that starch is the only principle which is convertible into sugar, and on the other hand, in the belief that the animal economy has not the power to originate a principle, but only to transform those which are presented by the vegetable kingdom. It has been denied that the animal organism can form sugar, the only power recognised being that of destroying and eliminating it; the author thinks that, in the present essay, he has succeeded in showing the fallacy of this belief.

First series of experiments.—It has been observed that during the digestion of saccharine and amylaceous matters, the blood contains sugar, and it has thence been concluded that the sugar is furnished by the aliments. This conclusion is erroneous, as is seen in the following experiments:

1*st Exp.*—The author injected thirty grains of starch, dissolved in a pint of water, into the stomach of a rabbit which had eaten oats and carrots. Five hours after the animal was destroyed, and some of the blood from the heart was collected. After coagulation, sugar was distinctly found in the serum.

2*d Exp.*—A strong dog was killed five hours after eating jelly of starch. The serum of the blood drawn from the heart contained a notable quantity of sugar. The contents of the stomach were acid, and contained no sugar; those of the intestines were alkaline, and strongly saccharine.

3*d Exp.*—A dog ate plentifully of sheep's head, and was killed seven hours afterwards. In the serum of the blood sugar was distinctly found. No sugar was found in the intestinal canal.

4*th Exp.*—A dog was killed after fasting two days. Sugar was unequivocally found in the serum.

The above experiments were repeated several times, and always with the same results. The general fact established is readily seen, viz. that sugar is constantly present in the blood of animals, whatever has been the nature of their food.

Second series.—Whence is the sugar derived in the case of the animals fed on meat, and in that which had not eaten for two days previous to death? This is the question, for the solution of which fresh experiments are required. It may be fairly presumed that the sugar was not formed in the heart, but had been transported thither from some other parts of the body. To determine more exactly the locality of its formation, the author performed the following experiments:

1*st Exp.*—A large strong dog being killed seven hours after a hearty meal of cooked meat and bones, digestion was found to be in full operation, and the gastro-intestinal circulation and chyliferous ducts fully distended with their respective contents. He obtained—1st, some blood from the junction of the splenic vein, with the vena porta; 2d, some chyle from the thoracic duct; 3d, blood, as before, from the cavities of the heart. He then carefully separated the contents of the stomach and bowels, and tested each separately for sugar with the subjoined results.

1st. The alimentary matters of the stomach and small intestines had an acid reaction, and afforded no evidence of the presence of sugar.

2d. The milky serum afforded by the coagulation of the chyle was also destitute of sugar.

3d. The blood of the vena porta being allowed to coagulate, the serum was slightly opaleseent and alkaline. The author distinctly ascertained the presence of a large quantity of sugar.

4th. The blood from the heart also presented sugar, but in less abundance.

The experiment was repeated several times, and with always the same result, but without the author being able to comprehend how the portal blood should contain so large a quantity of sugar, while none existed in the small intestines. Reflecting, however, that this matter must be derived from some neighbouring viscus, he proceeded as follows:—Having quickly destroyed a dog which had some hours since fed on matters destitute of sugar or fecula, he opened the abdominal cavity, and placed ligatures—1st, on the branches of the mesenteric veins, close to the small intestines; 2d, on the splenic veins, close to the spleen; 3d, on the pancreatic veins; 4th, on the trunk of the vena portæ as it entered the liver. He then collected blood from each of these sources, and examined it. 1. Sugar was not found in the blood of the intestines, nor in their contents. [The original states that sugar *was* found, but this is evidently an error of the press, as appears from the context.—*Trans.*] 2. Sugar was not present in the blood, either of the splenic or pancreatic veins. 3. The blood of the portal veins contained a large quantity of sugar, as did also the tissue of the liver itself.

It was thus made evident that the liver was the source of the saccharine matter. But it must be asked, how is it that sugar is found in the portal veins, for supposing it to be formed in the hepatic glandules, it should be carried into the general circulation by the hepatic veins, and not flow back into the portal branches. This reflux is, in the author's opinion, easy to be understood, for, in fact, the circulation in the porta is mainly effected by the pressure of the abdominal parietes during life; if, therefore, the pressure be removed as in opening the abdomen, there would immediately be a reflux from the absence of valves in the portal system.

It is thus ascertained, by the above experiments, that sugar is found in the liver, and is carried into the general circulation by the blood of the hepatic veins, the reflux into the porta being accidental; but the author regards this discovery to be so important, that he thinks it right to state the processes employed in the investigation, in order that others may confirm or confute the conclusions by following in his footsteps.

Tests for sugar in the liver itself.—A portion of liver is to be beaten in a mortar, and then boiled in a small quantity of water, and filtered. The filtered liquid possesses all the properties of a saccharine fluid. It becomes darker on boiling with liquor potassæ, and it reduces the double tartrate of potass and copper. If yeast be added at a certain temperature, fermentation ensues; if the fluid be distilled after fermentation, alcohol may be obtained. The attempt was made to procure sugar in substance by operating on large quantities of liver, but although a fluid of syrupy consistence was obtained, crystallization did not take place. The recognition of sugar in the blood is a very simple affair; the blood is allowed to coagulate, and the serum placed in a tube furnished with a stopper; to this is added a sixteenth in bulk of the tartrate of copper and potash, and boiled, when a quantity of the salt is reduced, proportionate to that of the sugar present. By this process the smallest traces of saccharine matter may be detected. Both in this test, as well as that by fermentation, it is necessary to operate on the serum while it is fresh, as sugar is rapidly decomposed spontaneously.

We have now traced the sugar of animals to the liver, but we have further

to determine whence it is derived. Two suppositions may be entertained; either it results directly from a transformation of certain elements of the liver, or it is derived from the food. It may be said, in fact, that the animals which had been fed exclusively on animal food, or starved, might have eaten fecula or saccharine food the few days previously, and that the sugar thence derived had accumulated and been detained in the liver; and it might be added, in support of this view, that the liver is known to retain arsenic and other poisons for a length of time. Without actually denying this view, the following experiments would seem to oppose it:

1*st Exp.*—A full-grown dog was starved for eight days, and then fed abundantly on cooked meat for eleven days; after this he was destroyed. The blood contained an abundance of sugar. This experiment was repeated several times, and certainly it would appear probable, that sugar derived from food, given antecedently, would have been eliminated after a lapse of nineteen days.

2*d Exp.*—A rabbit, after a meal of carrots, was subjected to the division of the pneumogastric nerves. He was found dead seventeen hours after. *No sugar was found in the blood or liver.* This experiment was repeated with similar results. In both animals the bile, which is generally alkaline, was found to have a distinctly acid reaction. This effect of division of the pneumogastric nerves is remarkable. As a further proof that sugar is found independently of food, the author states that he has found it in large quantity in fœtal calves. From the above facts the author draws the following conclusions:

1st. That diabetic sugar is a normal ingredient in the blood and liver of animals.

2d. That the formation of sugar takes place in the liver, and independently of saccharine or feculent food.

3d. That this formation of sugar commences before birth.

4th. That it is allied to a state of integrity of the pneumogastric nerves.

56. *Bread for Diabetic Patients.*—It is generally admitted that amylaceous matter in any quantity is injurious to diabetic patients; and attempts have therefore, at various times, been made to find a substitute for bread sufficiently agreeable to the patient. Dr. Percy has succeeded in finding this desideratum in the following recipe, in which the ligneous matter of potatoes replaces the bran which enters into the bread, recommended by Dr. Prout. (See Ed. 5th, p. 44.)

Take the ligneous matter of sixteen pounds of potatoes, washed free from starch; three quarters of a pound of mutton suet, half a pound of fresh butter, twelve eggs, half an ounce of carbonate of soda, and two ounces of dilute hydrochloric acid. This quantity to be divided into eight cakes, and in a quick oven baked until nicely browned.

It is, as must be obvious, an expensive article, but with many diabetic patients this will not be an object of consideration. It is somewhat improved in taste by being slightly toasted. At first, gum arabic, in sensible quantities, was introduced into this bread, on the ground of the assertion of Professor Graham, that when that substance is taken by a diabetic patient, the proportion of sugar evolved from the system is not thereby increased, and that, consequently, it might probably supply matter for pulmonary oxidation. However, it was found that it rendered the bread tenacious and disagreeable, so that its use was subsequently abandoned.

§ VI.—*Materia Medica and Therapeutics.*

57. *Therapeutic Value of Warm Water and Vapour Baths.*—A very comprehensive *résumé* of the present state of knowledge respecting the medicinal effects of water and vapour baths has been written by Dr. Kneeland, and may be consulted with advantage by those who wish to know what can be done with hot water and steam.*

58. "*Marteau de Mayor.*"—This is the original name of the instrument used by Dr. Corrigan in his operation of "firing." We have already mentioned our own experience of its effects in favorable terms. Confirmation of its merits is also given by Dr. Day, in his work previously alluded to. Dr. Kneeland gives the following description of its form and effects:

"The instrument is a hammer with a handle of wood; is plunged into boiling water; when heated, this is applied to the skin; the pain is acute, and the skin is discoloured and sunken; there is a true eschar. With water at 176° Fahr., an eschar is also formed, if the hammer be large; at 158° a phlyctena is formed, and when the epidermis is raised, a kind of false membrane is seen, which is a superficial eschar of the dermis; as albumen coagulates at 158°, when this degree of heat is applied to the capillaries of the dermis, the albumen is coagulated, and becomes a foreign body or an eschar. To determine if any of the elements of the dermis were disorganized below 158°, M. Trousseau commenced the application of the hammer at 122°, and gradually ascended towards 158°. At 122° the hammer caused rubefaction, which sometimes lasted an hour if the hammer were kept in contact with the skin till it cooled. At 131° the pain was severe and the rubefaction permanent. If, when the hammer was slightly cooled, another was applied at the same temperature, a bulla was formed, without disorganization of the dermis. At 140° the pain was hardly supportable; a single application produced vesication, repeated application caused a superficial eschar. At 150° by repeated application an eschar formed, for, though albumen does not coagulate at this heat, fibrin condenses and contracts at a much lower temperature. To recapitulate: the hammer of Mayor produces an eschar even as low as 158° Fahr.; repeated application at 150° produces superficial mortification of the dermis, and always causes vesication; between 130° and 150° there is vesication usually without mortification."

[The instrument which we had manufactured in 1845, the date of Dr. Corrigan's communication, consisted of a circular button, the size of a shilling, made of polished steel, to which was attached a shank of the same material, two inches long, and slightly arched from the top of the button. The other extremity was inserted into a wooden handle also about two inches long. The button is to be dipped in hot water, or held in the flame of a candle till the fingers placed on the shank cannot bear the heat, when it is to be immediately applied rapidly to the part affected.]

59. *Congelation as a Remedy.*—Dr. James Arnott, whose ingenious contrivance for the application of heat and cold in therapeutics we noticed in Vol. VII (p. 258), has called attention to the value of a degree of cold approaching congelation. He ridicules the idea of gangrene or reaction, the fear of which has generally operated against the employment of ice, &c. He was led to doubt these consequences, except in cases of prolonged application of cold, by observing that when intense cold had been used to remove sensi-

* American Journal of the Medical Sciences, Oct. 1848.

bility previous to operation, the wound appeared to heal more favorably than under ordinary circumstances. In the first article in the present Volume, the reader will find that the author has not hesitated to treat erysipelas in this manner; he has also seen it very serviceable in obstinate cases of prurigo pudendi.*

60. *Electricity and Galvanism.*—In contrast to the favorable account of the medicinal agency of electricity in its various forms, given in our former Volumes, by Dr. Bird, Mr. Wells, and others, we have on the present occasion to notice a paper by Dr. Bence Jones, placing the result of his experience of electro-magnetism in various forms of paralysis in a very unsatisfactory light. In the majority of the cases operated upon, no benefit was derived.†

[From the high character which Dr. Bence Jones bears as an acute observer and philosophical physician, great weight may reasonably be attached to his opinions; but it is right to remind him that negative observations are, after all, worth but little. He may have been unfortunate in his selection of cases, and we know that when the paralysis depends on existing organic disease, no useful results can be anticipated from electricity in any of its forms; but as Dr. Golding Bird has remarked, on the contrary mischief may accrue. Our own opinion is, that it is an agent which is as yet scarcely sufficiently appreciated in the treatment not only of overt disease of the nervous system, but of functional derangement of various organs, in the causation of which the nervous system does not take a distinctly manifest part.]

— Mr. Tuson, on the other hand, has recorded observations of a very favorable kind, respecting the benefit of electro-magnetism in certain local neuralgic affections, the consequence of injury.‡

61. *Chloroform.*—We have but little additional information to give respecting the *medical* employment of this agent. It has been given internally in several diseases, as in cholera, in the vomiting of pregnancy, and of renal disease, &c., with variable benefit. Dr. Hartshorne gives cases of neuralgia relieved by doses of ʒj; as also of colic. He adds it likewise to cough mixtures with advantage.§ [As a local application, we have tried it several times in severe neuralgia; it succeeds in allaying the pain for a time, but the burning sensation, in the first instance, is next to intolerable.]

62. *Collodion.*—We have, at a former page, given so full a summary of the medical uses of this article, that little requires to be added in this place. The discovery of collodion is disputed by Schonbein, the inventor of the gun-cotton, who states that he long since recommended for surgical use a fluid which he termed "Liquor constringens," or ether glue, and that it had been employed in Switzerland three years previous to any notice of it in America.‖

— In diseases of the skin, Mr. Startin has not found collodion so generally useful as was at one time thought probable that it would be; in some forms he has found it prejudicial. Our own experience is similar.¶

63. *Cod-liver Oil.*—This medicine maintains its credit in the treatment of pulmonary phthisis, and of various forms of scrofulous and rheumatic disease. Of its advantages in the former we have accumulated numerous irrefragable proofs, which it is our intention to publish as soon as we can collect the results of the experience of others. As its nauseous flavour is frequently an insurmountable objection to its use, we subjoin a few formulæ, by which it can be rendered more palatable.

* Medical Gazette, Dec. 1, 1848.
† Medical Times, Feb. 24. 1849.
‖ Lancet, March 17, 1849.
† London Journal of Medicine, No. 2, 1849.
§ Amer. Journ. of the Med. Sciences, Oct. 1848.
¶ Medical Times, Dec. 6, 1848.

1. ℞ Ol. jecoris aselli, ℥j;
Solut. potassæ carb., ʒij;
Syrup. aurantii, ℥j;
Ol. caryophyll. ♏ iv.
Dosis coch. parvum, bis in die.

2. ℞ Ol. jecoris aselli;
Syrup. aurantii;
Aquæ anisi, āā ℥j;
Ol. caryophyll. ♏ iij.
Coch. magnum, unum pro dosi, ter in die.

3. ℞ Ol. jecoris aselli, ℥viij;
Pulv. acaciæ, ℥j; fiat emulsio et adde
Syrup. aurant. ℥j;
Sp. menth. pip., ʒij.
M. Coch. magnum, unum pro dosi, bis in die.

We have also found a good way of disguising the taste, in ordering it to be shaken up with hot milk, or floated on hot coffee.

64. *Chemical Characters and Tests for Cod-liver Oil.*—The following account is from a paper on the subject by Dr. Pereira:

In general, continental writers distinguish three varieties of cod-liver oil, one white or pale yellow, a second brownish-yellow, a third dark brown. But between the finest pale yellow or almost colourless oil, and the dark brown cod-oil used by curriers, there is an almost infinite variety of shades, so that no absolute difference can be founded on colour only.

De Jongh found the principal constituents of these oils to be *oleate* and *margarate of glycerine*, possessing the usual properties. But they also contained *butyric* and *acetic acids*, *the principal constituents of the bile* (bilifellinic acid, bilifulvin, and cholic acid), *some peculiar principles* (among which was the substance called *gaduin*) and not quite one per cent. of *salts*, containing iodine, chlorine, and traces of bromine. Moreover, he found that the oils always contained free *phosphorus*.

From De Jongh's analyses, it would appear that the *pale* oil is the richest in oleic acid and glycerine—that the *brown* oil contains the largest amount of margaric, butyric, and acetic acids, and of the substances peculiar to cod-liver oil—and, lastly, that the *pale brown* oil is richest in iodine and saline matters.

Considerable importance has been given to the fact that cod-liver oil frequently or usually contains both *iodine* and *bromine*. To the presence of one or both of these substances has been ascribed the whole or part of the remedial efficacy of the oil. A little consideration, however, would be sufficient to prove that their therapeutical agency must, if any, be exceedingly small. The proportion in which they exist in the oil is inconstant, though in all cases very small. Moreover, beneficial effects have been produced by the use of the oil, which neither iodine or bromine are capable of producing.

The largest amount of iodine found in genuine oil is less than 0·05 per cent. If the amount obtained be larger than this, fraud may be suspected. It is said by Dr. Martiny that some dishonest druggists have introduced iodine into the oil for the purpose of augmenting its commercial value. Nay, it is stated that an artificial cod-liver oil has been made by combining iodine with common fish or train oils.

The proportion of *bromine* was estimated in conjunction with that of chlorine, as the quantity was too small to admit of accurate separation. Together, their amount in the pale oil was 0·14 per cent.

In the same analysis the proportion of *phosphoric acid* was 0·09, and of *phosphorus* 0·02 per cent.

The characters by which we judge of the genuineness, purity, and goodness of the oil are partly physical, partly chemical.

The physical characters are colour, odour, and flavour. The finest oil is that which is most devoid of colour, odour, and flavour. The oil as contained in the cells of the fresh liver is nearly colourless, and the brownish colour possessed by the ordinary cod-oil used by curriers is due to colouring matters derived from the decomposing hepatic tissues and fluids, or from the action of air on the oil. Chemical analysis lends no support to the opinion, at one time entertained, that the brown oil was superior, as a therapeutical agent, to the pale oil. Chemistry has not discovered any substances in the brown oil which could confer on it superior activity as a medicine. On the other hand, the disgusting odour and flavour, and nauseating qualities of the brown oil, preclude its repeated use. Moreover, there is reason to suspect that, if patients could conquer their aversion to it, its free use like that of other rancid and empyreumatic fats, would disturb the digestive functions, and be attended with injurious effects.

Of the chemical characters which have been used to determine the genuineness of cod-liver oil, some have reference to the iodine, others to the gaduin or to the bile-constituents. It was already stated that some fraudulent persons are said to have admixed iodine (either free iodine of iodide of potassium) with train oil to imitate cod-liver oil. The presence of this substance, when mixed artificially, may be readily detected by adding a solution of starch and a few drops of sulphuric acid, by which the blue iodide of starch is produced; or the suspected oil may be shaken with alcohol, which abstracts the iodine.

Sulphuric acid has been employed as a test for cod-liver oil. If a drop of concentrated sulphuric acid be added to fresh cod-liver oil, the latter assumes a fine violet colour, which soon passes into yellowish or brownish-red. Some samples of oil produce at once the red colour, without the preliminary violet tint. It has been erroneously supposed by some persons that this violet colour was due to the evolution of iodine by the action of the acid on an alkaline iodide contained in the oil. If that were the case, the presence of a little starch-paste would be sufficient to convert the violet into an intense blue colour; which is not the case. The coloration, in fact, depends on the action of the sulphuric acid on some one or more organic constituents of the oil, and the following facts lead Dr. Pereira to infer that it is in part due to the presence in the oil of one of the constituents of the bile. Dr. Pereira then enumerates several facts in favour of this view. He concludes:

"It follows, therefore, from what has been stated, that although oil of vitriol is a test for liver oils, it does not distinguish one liver oil from another, for it reacts equally with the oil of the liver of the ray and with the oil of the liver of the common cod. Neither does it distinguish good cod-liver oil from bad, for it produces its characteristic reaction both with common brown cod-oil, and with the finest and palest qualities. But it serves to distinguish oil procured from the liver, from oil obtained from other parts of this animal."*

65. *Action of Tartar Emetic.*—M. Bonamy has recorded some careful observations on the aetion of tartar emetic, which, though offering nothing new, are important on account of the greater precision they give to our existing knowledge.

From a table, based on twenty-five observations, in which the pulse was examined before and after the use of the drug, we find that, in twenty-three cases, the diminution in the number of pulsations observed on the day succeeding the first administration, was 15, 30, 10, 24, 40, 3, 20, 8, 10, 5, 24, 23, 18, 13, 23, 12, 10, 15, 10. In the other two cases there was no change

* Pharm. Journ., 1848.

in the frequency of the pulse. On the second and third days the slowness of the pulse was generally more marked.

Great diversity of opinion prevails in relation to the diaphoretic action of tartar emetic. Of fifty-five observations, M. Bonamy found the cutaneous secretion augmented in four cases only. He considers diaphoresis, therefore, an accidental effect of tartar emetic, probably occasioned by the sickness and vomiting, and not by the remote action of the drug. He does not show, however, that vomiting was present in the four cases alluded to.

M. Bonamy regards the marked sedation of the nervous powers, which ensues from the use of tartar emetic, as an indirect effect, consequent on the weakening of the circulation.

The author's observations on the therapeutic properties of tartar emetic need not detain us. They confirm the almost universal opinion of its value in pneumonia.

In acute rheumatism he found its beneficial action much less constant and less marked than in pneumonia. There is nothing new on its use in other diseases.

Is the establishment of tolerance necessary to the efficient therapeutic action of tartar emetic? M. Bonamy replies to this question in the negative, and maintains that, in many cases where he could not obtain tolerance, the efficiency of the drug was not the less marked. He thinks that, as an antiphlogistic, it is most usefully exhibited in frequent small doses, not exceeding the fraction of a grain.*

66. *Iron and Alumina, New Salt of.*—Sir James Murray has described a new combination of iron and alumina, which he considers of great superiority in the treatment of chronic diarrhœa, dysentery, and common cholera; also in debilitating mucous discharges, such as fluor albus, and in the colliquative looseness and perspirations of consumptive or hectic patients.

From the properties of iron in destroying white-blooded animals, this remedy is a valuable vermifuge. Its use corrects that peculiar condition of the intestinal canal, which precedes and promotes the generation of worms.

Being well calculated to restore a more healthy tone to the mucous tunics, it soon removes the relaxation and vitiated secretions of the alimentary lining membranes. Occasional purgatives must be employed during its use as a vermifuge. Externally, it is a powerful styptic when employed to arrest bleeding from the nose or leech-bites. Its use has been attended with the best effects in the sore throats of scarlatina, and also in diphtheritis. The solution of this salt is the best gargle in relaxation of the uvula and tonsils, and as a collyrium. It abates salivation, improves the appearance, and prevents the fetor of foul or flabby ulcers. Injections of the salt are very effectual in excessive hemorrhages.

This salt, which he terms bisulphate of iron and alumina, is easily made by treating bicarbonated solution of soft iron and carbonated solution of pure washed alumina with sulphuric acid, after separating the arsenic and other ingredients which are too often found in the vitriolic acid of commerce.

The dose is from five to ten grains in aromatic water.†

67. *Iodide of Potassium in Saturnine Affections.*—Professor Dumas read, for M. Melsens, an abstract of a memoir on this subject. The treatment proposed by the author rests upon the principle of rendering soluble metallic substances which might otherwise remain in the system, by associating them with another substance which is readily eliminated by the organs of secretion. M. Melsens remarks, that the insoluble compounds resulting from the combination of mercurial salts, and the contents of the digestive organs, dissolve

* Etudes sur le Tartre Stibié, Paris, 1848; and Monthly Journal.

† Dublin Medical Press, March 14, 1849.

in hydriodate of potass, and that the great facility with which this salt is rejected, may induce a hope that the poison will also be eliminated at the same time. M. Melsens asserts, that the same solubility in hydriodate of potass exists in salts of lead. Sulphate of lead, for instance, exhibited alone to a dog, produces death in a very short time; but no accident whatever is observed if the hydriodate of potass is taken together with the saturnine sulphate. In cases of mercurial palsy, related by M. Melsens, the symptoms yielded to the iodide of potass, and mercury was detected in the urine during the exhibition of this drug. But as it is by facilitating the absorption of an insoluble substance contained in the intestine, that M. Melsens endeavours to produce its elimination, the method is not altogether without peril, and it is only in very small and gradually increasing doses that he recommends the use of the hydriodate of potass.*

68. *Sulphate of Phyllerine.*—This is a new alkaloid recently added to the list of febrifuges, and obtained from the *Phylleria latifolia.* Dr. Sachelli has experimented with doses of twelve to fifteen grains, which he has found extremely valuable in intermittents.

69. *Spigelia Marylandica.*—The powers of this drug as an anthelemintic, and in the pruritus ani which attends the presence of worms, is attested by Dr. Koreff. The root is the medicinal part of the herb, and is given in the form of infusion—ʒiss to the pint, sweetened with manna.†

70. *Charcoal in Gastrodynia.*—This appears to be one of those remedies which, without obvious reasons, have been subjects to alternate favour and neglect of physicians. M. Belloc, a French military surgeon, has resuscitated its use in a memoir, of which we proceed to give some account. It appears that he first tried it in his own case, and was astonished at the benefit he received, not only in the relief of his dyspeptic symptoms, but in the removal of habitual constipation to which he was subject. He subsequently exhibited it in numerous cases which he records, in some of which bismuth, iron, and lead utterly failed.

His method of preparing the charcoal is as follows:—He takes shoots of three or four years old, of which the bark has not been injured (the poplar is preferred). These are cut into appropriate lengths, and heated to a white heat in closed vessels. The charcoal is then allowed to soak for several days in cold water frequently renewed, after which it is dried, and is then fit for use. It is given in a moist powder, in doses of a dessert-spoonful after each meal. Its action on the stomach is described as agreeable, increasing the appetite, and removing the eructations which form so disagreeable an accompaniment of impaired digestion. It also speedily removes the gastrodynia, and ensures a regular action of the bowels.‡

71. *Nux vomica in Diarrhœa.*—Dr. Nevins has alluded to the benefit derived from the exhibition of nux vomica in pauper patients labouring under exhausting diarrhœa. His formula is—Alcoholic extract of nux vomica, gr. ss; rhubarb, gr. ss; saccharine carbonate of iron, gr. j; blue pill, gr. ss; opium, gr. $\frac{1}{8}$; in a pill three times a day. He attributes the benefit derived to the action of the nux vomica in stimulating the nervous power of the intestines, and thus enabling their lacteals to absorb the nutriment from the food. At the same time, the small doses of blue pill and rhubarb improved the secretions, and the iron acted as a tonic.§

72. *Cannabine* is generally seen as an amorphous substance, of a brown colour in the mass, and greenish in its lamellæ. Heated on platina it liquefies, takes

* Bul. des Acad., and Med. Times, Feb. 24, 1849.
† Revue Méd.-Chir., Feb. 1848.
‡ Ibid., Feb. 1849.
§ Medical Gazette, Dec. 15, 1848.

fire, and burns without residue. It has an aromatic and nauseous odour, and a peppery, acrid taste. It is insoluble in water, and hence the impropriety of decoction or infusion of Indian hemp; but is soluble in alcohol, ether, fats, or oils. It was employed by Dr. Willemin in treating cholera at Cairo, and affords a good means of exactly apportioning the dose of Indian hemp, the different preparations of this containing the active principle in very various proportions. It may be given in the form of pills or tincture. The latter is formed by dissolving 1 part in 9 of alcohol, and filtering at the end of some hours; 1 gramme of this contains 10 centigrammes (2-5ths of a grain) of cannabine, which is the dose employed by Dr. Willemin in cholera. It may be given in infusion of tea or chamomile, and its action is assured by taking a cup of coffee at the same time, or soon after. The form of pill is, however, preferable; as the water to which the tincture of cannabine is added, owing to the insolubility of this, becomes turbid.*

73. *Rumex.*—The water-dock enjoys a high character in America as an alterative and substitute for sarsaparilla. It is given in venereal diseases with iodine and mercury. It has also been found to cure the most inveterate forms of scabies, as quickly as sulphur. It is used in decoction. ℥j of the dried root to a pint of water; dose, ℥j to ℥ij three times a day.†

74. *New Instruments—The Aneuralgicon.*—This is the name of a contrivance for allaying pain, by the application of sedative vapours. It consists of bellows made on the principle of the musical instrument known as the accordeon: a cylinder for igniting the matter used in fumigating, and tubes filled with various-shaped mouthpieces for the direction of the current, some being tubular and fine for the meatus auditorius and interior of the uterus; others funnel-shaped, for the application of the vapour to a circumscribed flat surface, as on the skin. The principle is the same as that of the greenhouse fumigator. The materials used are the leaves and stalks of various herbs, as belladonna, stramonium, tobacco, &c. The inventor is Dr. Downing.

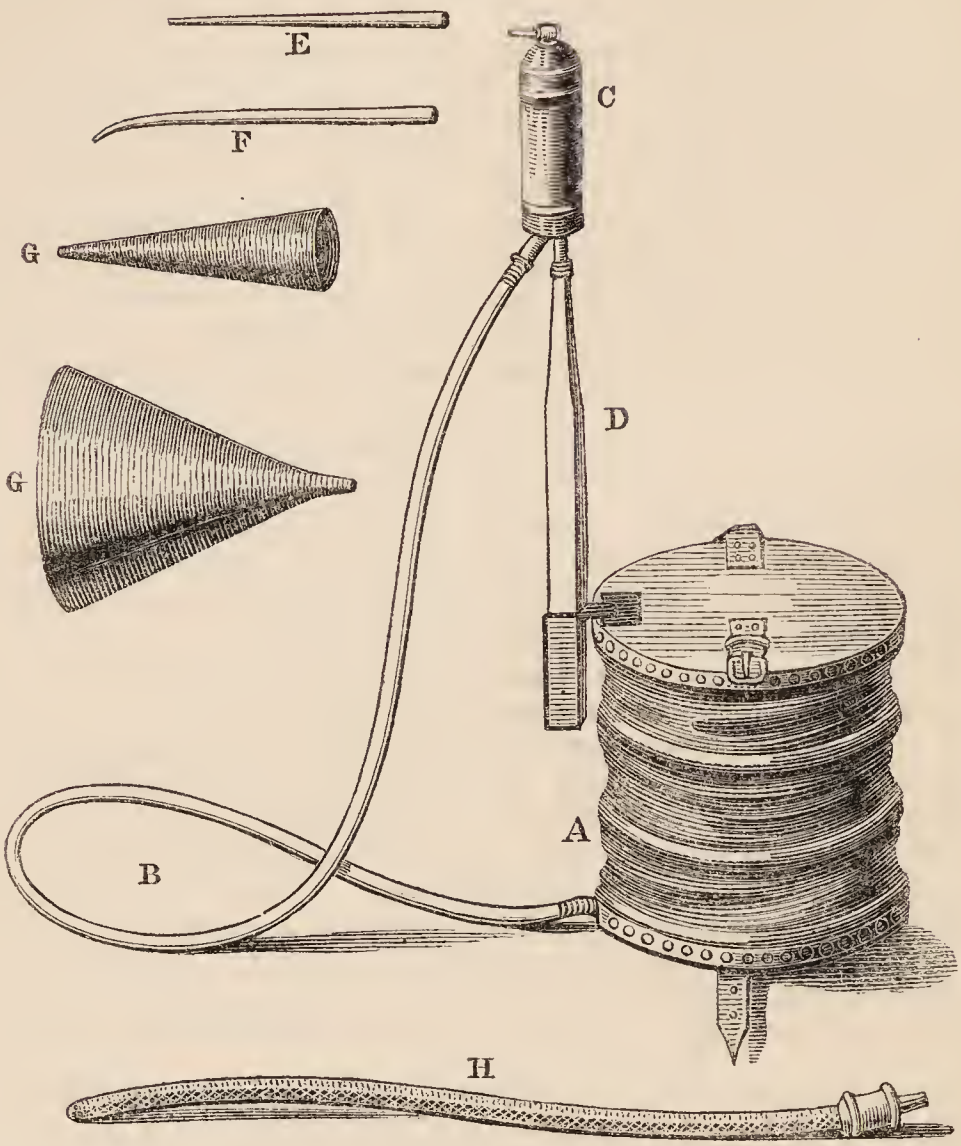
The following cut (Fig. 1, p. 266) is a good illustration of the aneuralgicon.

A somewhat similar mode of treatment, with a different form of instrument (Fig. 2), has been used by Mr. Fenton, of Liverpool. It consists of the well-known "blower," invented by Mr. Clarke, as patented bellows, which is a circular tin box perforated on each side for the admission of air, and containing a fan-wheel, and a tin tube or barrel attached, through which the fan drives a continuous current of air, by means of an external wheel acting upon the axle of the fan. Through the centre of the barrel is introduced a brass pipe, extending from its mouth (as slightly seen in the sketch) to its junction with the box, where it enters, and is there joined to Indian rubber piping, for the purpose of conveying gas into the brass pipe. This brass pipe is perforated with sixty or seventy holes for the ignition of gas; around it is a wire-gauze tube, closed at the inner end for the purpose of retaining a greater heat. The other end of the Indian rubber piping is fixed to a chandelier or gas-pipe of any description, or to portable gas.

A lighted match is held to the mouth of the bellows while the gas is turned on, and the wheel at once set in motion, when a stream of flame issues from its mouth, and in about a minute the gas-pipe becomes red-hot; the gas is then lowered until the flame is only just perceived, and sufficient to keep the tube ignited, when the hot air may be directed to the affected part. The heat from this source is intense, according to the distance the affected part is placed.‡

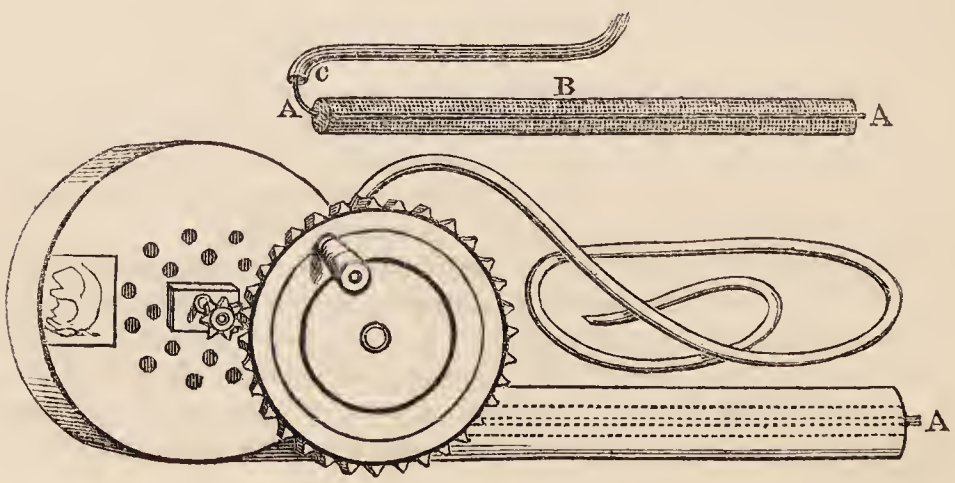
* Revue Médico-Chirurg. † Trans. of the American Medical Association, vol. i.
‡ Lancet, Feb. 1849.

Fig 1.



A, the bellows; B, the Indian rubber tube; C, the cylinder; D, ivory handle of cylinder E, tube for meatus; F, curve tube; G, G, cones; H, uterus tube.

Fig. 2.



A, A, the brass pipe; B, the wire gauze surrounding it; C, the Indian rubber piping attached to the brass gas-pipe.

II.

REPORT ON THE PROGRESS OF SURGERY.

BY C. LOCKHART ROBERTSON, M.D.,

Fellow of the Royal College of Physicians; Edin.; Army Medical Staff; &c. &c.

The several new publications referring to the practice and theory of Surgery, which it is our duty to notice in the present Report, are as under:

I. *Pathology of the Human Eye.* By JOHN DALRYMPLE, F.R.C.S.—This splendid work is undertaken with a view of placing before the members of the profession a faithful representation of the diseases of the visual organs which fall under the care of those who, at a distance from ophthalmic institutions, have few opportunities of becoming familiar with their external indications. The author, however, does not profess to touch upon all the diseases of the eye, as there are several which do not allow of pictorial delineation, and others which, from their frequency and simplicity, do not require it. The first fasciculus now before us contains four plates, each exhibiting six drawings of various diseases of the appendages of the eye, accompanied by letter-press, containing a well-digested summary of the pathology and treatment of each. Of the pictorial illustrations it is impossible to speak in terms of too forcible commendation; they can be only surpassed by the originals from which they were taken. We trust that both author and publisher will meet with such support as the intrinsic merit of the undertaking richly deserves.

II. *Surgical Anatomy.* By JOSEPH MACLISE.—In our last Volume we noticed the appearance of the first fasciculus, and commended it, both as a work of art and of science. The second part has recently been issued, and fully merits an equal meed of praise. It is a mystery only to be solved by the publisher, how, for five shillings, such plates and type, to say nothing of matter, can be offered to the profession. Nothing but an extensive circulation, which we hear the work already commands, can, we imagine, liquidate the expenses of the publication.

III. We have also received the third edition of Mr. Hare's work on Spinal Disease, which appears to have been carefully revised and enlarged.

IV. *Lectures on the Causes and Treatment of Ulcers of the Lower Extremities.* By G. CRITCHETT, F.R.C.S.

On the Treatment of Ulcers of the Lower Extremities, without Confinement. By S. CHAPMAN, F.R.C.S.

These works are devoted to the same object, the treatment of ulcers of the legs without confinement; and both exhibit the evidence of being the composition of experienced surgeons. Extracts from the first appear in the present Volume (art. 41, p. 116).

§ I.—*Surgical Experience of Chloroform.*

1. Since the date of our last Report, Professor Miller has published a very able pamphlet* on the Use of Chloroform in the practice of Surgery, the con-

* Surgical Experience of Chloroform, by James Miller, F.R.S.E., &c. &c., pp. 60; Edinburgh, 1848.

tents of which we shall endeavour, as far as our limits admit of, to lay before our readers. The author's remarks are distributed under the following sections.

1st. *Anæsthesia permits the performance of operations otherwise inexpedient.*—It is well known to the operating surgeon, that the shock of his capital manipulations is twofold. 1. Mental; depending on alarm and fear. 2. Corporeal; independent of all mental working and influence; an impression made on the nervous system, probably by the abrupt and decided interference with the circulation—yet not necessarily connected with great loss of blood. The anæsthetic removes the former *in toto;* and I think that I have seen the second, of course not averted, but favorably modified by it also. I believe that the body actually acquires, under the full influence of chloroform, a positive *tolerance* of operation, superior to what it possesses under ordinary circumstances.

2d. *Anæsthesia permits the performance of operations otherwise impracticable.*—Its great advantage is very evident in operations which require great nicety of manipulation along with great steadiness on the part of the patient. Tumours, deep in the neck, for example, may come under this class, especially in the young. At every age we occasionally meet with cases wholly impracticable, from want of courage and self-control on the part of the patient.

In most operations on the eye chloroform is likely to prove a great assistance; for when the patient is placed in complete snorting stupor, the eye will be found not only quite motionless, but also perfectly regardless of the stimulus of knife, scissors, hook, and forceps.

3d. *Anæsthesia affords great relief to the operator as well as to the patient.*—This requires no illustration. To no ordinarily constituted man is pain otherwise than repugnant, whether it occur in himself or in another; and hitherto there can be no doubt that his being compelled to inflict pain, and witness the infliction of it, has always been esteemed by the surgeon as the hardest portion of his professional lot. Now this is gone. He proceeds to operate with a mind wholly unoccupied with regard to the *feelings* of his patient; for he knows that all the while he will be in unconscious sleep; and the surgeon's mind, thus undistracted, is, of course, so much the more competent to deal with the details of the operation—its planning, execution, and completion.

4th. *The operating surgeon should never be in a hurry; now he has no excuse for this.*—Formerly he was tempted to over-haste. He may have imbibed the absurd idea that dexterity is commensurate with rapidity of performance; and a sense of his own self-interest may have unduly urged him to dispatch, in public practice more especially. But it is more charitable to judge that the true reason, in the great majority of cases, was actually that which would probably have been given by the operator himself to an inquirer—to save pain to the patient, to abridge the moments of suffering, for even moments of these are of huge import. Now such moments exist no longer; they are unknown with chloroform. And as there is no cause or excuse for haste in operating on a dead body stretched on a dissecting-table, so there is as little cause or excuse for haste in operating on an anæsthetized body of a living patient. Formerly it was thought that a stone-patient, by enduring less shock, was more favorably circumstanced for recovery the more rapidly the operation was performed. With chloroform, however, all is changed; and in this, as in all other operations, the surgeon is left at liberty to be as deliberate and painstaking in every movement of the knife as if he were dealing with textures truly inanimate. From such deliberation in procedure there results, as already stated, no increase of shock or other evil; all is pure benefit—an operation conducted in all its parts with certainty and precision, and therefore more promising of a successful issue.

5th. *Anæsthesia does not favour hemorrhage.*—The converse has been an

objection urged. In my experience and belief, it does not hold good. Take amputation for example. 1. Anæsthesia does not favour flow of blood during the incisions—on the contrary. The tourniquet, or compressing finger of an assistant, is not liable, as before, to be jerked off the vessel, for the patient is lying in thorough stupor, with lith and limb supple as a willow and motionless as a log. The absence of alarm and excitement in the patient saves quickening of the *general* circulation. The absence of writhing and contortion in the limb saves from *local* acceleration of the blood's flow, more especially from the venous trunks. 2. Neither does anæsthesia favour bleeding during deligation of vessels on the stump's face. On the contrary, the quiet state of the stump favours quick dispatch in securing these; and the orifices untied, abiding their turn, will exude all the more sparingly on account of the quiet state of the general system. 3. Nor does anæsthesia favour hemorrhage after the stump has been arranged, and the patient replaced in bed; for, in the first place, such ample leisure is given for sponging and scrutinising every part of the stump, once and again, as to render the overlooking of any likely vessel, however obscure, extremely improbable; and, in the second place, reaction after emergence from anæsthesia is not sudden, but gradual; neither is the state of quiet followed by one of excitement; the patient continues tranquil and composed, the general circulation suffers no arousing, and, in consequence, nature's hæmostatics are not likely to be undone in any of the minute arterial twigs.

6th. *Anæsthesia tends to save blood.*—This follows as a corollary from the preceding. The general circulation is quiet and gentle, the muscles are at rest, and ample leisure is given for looking for and securing every bleeding point, and every point likely to bleed. Besides, there may be a decided saving in venous blood; more especially in the neck, axilla, or other parts near the organs of respiration.

7th. *Delicate dissections are rendered more simple and safe.*—This must inevitably be the result, if the necessary depth of stupor be produced and suitably maintained, as it always can be. Excepting the flow of blood, the anatomy is as plain as in a dissecting-room.

8th. *The advantages conferred by anæsthesia on the patient are very obvious, and scarcely require even enumeration.*—Absence of alarm and excitement, and of shock, previous to the operation; freedom from pain during it, and during the arrangement and dressing of the wound, which may be tedious; a greater readiness to undergo operation, rendering this, therefore, because early, all the more likely to prove successful; the prospect, at all times, of a better recovery, all the circumstances of the operation (absence of shock, sparing loss of blood, accuracy of incision, &c.) having been rendered conducive thereunto.

9th. *In operations on the mouth and nose, anæsthesia must be used warily, if at all.*—The obvious and urgent cause of prudence here is the risk of asphyxia by blood escaping into the air-passages. Blood trickles down into the fauces. There, in ordinary circumstances, its presence excites, by reflex action, the function of swallowing, and on it passes to the stomach. Or if some do find its way into the glottis, it is quickly ejected again, by the violent and uncontrollable efforts of coughing, which the presence of all foreign matter there never fails to produce. But in the deep stupor of surgical anæsthesia, the patient is "too far gone" for either the receiving or the rejecting function; he is alike dull to swallow or to cough; the fluid blood gravitating downwards, as if in a dead body, is as likely to make its way into the air-passages as into the gullet, and accumulating in the former site, because not rejected, it chokes the patient as effectually as if a rope had been drawn tight round his neck, or his lungs injected with plaster of Paris.

In operating for polypus of the nose I have employed chloroform; but always

took care to have the patient seated very erect, and ever and anon to have the head stooped forwards, so as to get the mouth and throat cleared of blood. Notwithstanding the latter precaution, a good deal of blood has reached the stomach, with perhaps a polypus or two from the posterior fauces; but I have never been troubled with the entrance of either into the air-passages; it is, however, obvious that if chloroform be employed in operations on the mouth or nose, it must be used very cautiously. The patient is laid recumbent during the administration; for that posture, as formerly stated, is very favorable to the desired result being rapidly and satisfactorily obtained. In operating, the position must be changed to that of sitting; or the patient is arranged on his side, so as to make the orifice of the mouth dependent.

10th. *Chloroform lulls pain after operation, and may be advantageously employed thus, although inexpedient during the operation itself.*—In removing a tumour from the palate of a lady, anæsthesia was abstained from during the operation, for the reason stated in the previous section. But when the operation was over, and the bleeding had stopped, great relief was afforded by gentle inspiration of chloroform; not pushing it so far as to cause deep sleep, but just maintaining what may be termed its *deadening* effect on pain.

11th. *In operations on the skull and brain anæsthesia is not contra-indicated.*—If anæsthesia be but asphyxia, as some contend, it should be otherwise. Congestion of the brain should be an untoward attendant on such operations. And yet it is not so.

Surgery derives most important advantages from anæsthesia, independently of those connected with operation.—These the author proceeds shortly to consider. He does not think it necessary to dwell on the obvious benefits that accrue from chloroform's use, in the ordinary painful manipulations of our art, as opening abscesses and sinuses in the young or timid, inserting setons or issues, applying the actual cautery, probing or otherwise examining diseased joints, &c. In the one set of cases pain and fright are saved; in the other, accuracy of diagnosis is manifestly favoured besides.

12th. *Anæsthesia is of much service in cases of dislocation.*—Not only does it remove all pain from the efforts of reduction—reduction itself is wondrously facilitated. If a man is found immediately after infliction of the injury, he is pale, sick, and faint; every muscle has lost its energy; he cannot, even by strong will, call up a muscular effort; and, in consequence of the thorough state of muscular helplessness, the surgeon has seldom any difficulty, even though single-handed, in reducing the displacement. But if this favorable period of depression pass by unimproved, and the man recover his general vigour, while the muscles regain their ordinary contractility—and something more—it is well known that much difficulty must be looked for, in many cases, ere displacement can be effected. And this is not achieved—that is to say, the main obstacle to reduction, namely, muscular contraction, is not overcome, without the infliction of much pain on the patient, and the expenditure of much exertion on the part of the surgeon and his assistants. The object is, to succeed not by mere brute force, in hauling by ropes or sheets; but to imitate that state of prostration which occurs at the time of the accident, and which is so manifestly favorable to success. Many auxiliaries, therefore, to the mere physical force have been devised and praetised: tobacco, but that does too much; bleeding, but that also is faulty, for it is but seldom that blood in quantity can well be spared; opium, but the effects are not very transitory, and all systems do not equally well agree with the drug. Antimony, pushed to complete nausea, and the warm bath kept up to complete prostration, these latter have hitherto been the most frequently employed; achieving the object desired, not very persistent in their effects, and leaving no permanent damage in

the system. But all are inferior to chloroform. Did this do nothing more than merely obtain thorough muscular relaxation, it would be a great matter; but when, in addition to this, it removes all pain of manipulation too, the value of the boon is unspeakably enhanced. The stupor must be deep, however, and deep it must be maintained, otherwise the effect on the muscles will be the very opposite of what we seek. The patient is laid down, and all arrangements made for extension; the chloroform is given, the legs and arms begin to move, and the muscles will be found then as stiff and hard as boards; nothing is done until the eyes fix, the limbs are at rest, and the muscles grow soft and supple as if a week dead. Then the extension and coaptation are made; and it is truly wonderful to see with what facility, in most practicable cases, the bones find their place again. The object is achieved without much trouble to either party, and without even the knowledge of the one principally concerned.

13th. *Anæsthesia is of much use in the examination of injuries.*—The surgeon is not unfrequently sensible of strong inward discomfort, when called on to make a searching examination of a hip-, elbow-, or shoulder-joint, recently injured. And his discomfort arises from two distinct causes: 1. There is the apprehended difficulty of the inquiry, with uncertainty of diagnosis; and the consequent risk of reputation in himself, as well as of disadvantage to the patient. 2. There is a strong reluctance towards inflicting such pain as he knows is inevitably associated with the thorough manipulation necessary to secure accuracy of diagnosis. From both these, chloroform relieves him. From the latter thoroughly; for the patient feels no pain, if duly placed and maintained in anæsthesia, let the surgeon handle him as long and as roughly as he may. From the former he is likely to be also saved; inasmuch as the anæsthesia, while it admits of unlimited manipulation, creates also such a thoroughly passive condition of the parts, by reason of muscular relaxation, as greatly to facilitate a perception of the degree and kind of injury at once quick and accurate. Many and many a time have I felt myself sorely beset in encountering hip- and shoulder-joints, especially in children; my brain urging my hands to work freely, regardless of everything but diagnosis; my heart upbraiding me for causing the poor patient such agony, and counselling me to desist. Many and many a time, during the past twelve months, have I thankfully found myself spared such inward discord; the patient unconscious of everything, and the surgeon's head and heart left to their own proper functions in perfect harmony. Furthermore, a third advantage may result from chloroform here. Not only is pain saved, and diagnosis facilitated. Suppose that the joint is found to be dislocated. Why, no sooner, almost, is this truth arrived at, than back the bone may be placed in its proper site again; and that with no greater effort on the part of the surgeon, than what is usual in mere detective manipulation—so thoroughly favorable is the condition of the part for reduction. Under chloroform, recent fracture of the neck of the humerus was at once detected; and so loose and tractable did the now isolated head of the bone feel in the axilla, as to suggest the idea that, if there had been anything to pull it by, reduction of the old and original injury might even at that date have been effected.

14th. *Anæsthesia lends much assistance in the treatment of irritable stricture.*—Every surgeon has had ample proofs given him of there being often much irritability and much spasm in the male urethra, when the seat of an old standing and tough stricture; and he knows full well, that he and his bougie find these depraved conditions most troublesome as well as most obstinate foes, in the treatment of the main disease. So sensitive sometimes is the part that the patient cannot bear the instrument, and insists on its removal ere even it has reached the strictured portion. Or, again, it may

painfully pass a certain length; and then a spasm comes, quite insuperable —with safety—as if declaring, that though the patient might bear the instrument, the stricture will not. In such cases there are a variety of means whereby we may seek to overcome the difficulty. But there are none so good as chloroform.

15th. *Anæsthesia renders the operation of sounding safer for both patient and surgeon.*—All surgeons are familiar with the fact, that simple as this manipulation seems, yet it is in itself not free from hazard to life. From it alone patients have perished; by a cystitis, by suppression of urine, by fever, or otherwise. Surgeons are as familiar with the equally painful fact that they are liable to be deceived in the results of the operation, and to fall into sad disasters in consequence. In short, many a surgeon has thought he felt a stone, when in reality he did not; and stoneless lithotomies have followed. Now, with chloroform, the patient—whatever his age or timidity, however irritable and sensitive his bladder, however protracted and careful the sounding —lies as steady and as quiet as if dead; the touch and ear of the surgeon have it all their own way, and in ordinary cases he is sure of avoiding error in diagnosis.

16th. *Chloroform is a most valuable auxiliary in the taxis for hernia.*— We praised it highly as an auxiliary in the reduction of dislocated joints. Hernia is a dislocation; and in the displacement of bowel, chloroform will be found almost as efficient as in displacement of bone. The observations need not be repeated. It saves pain, produces thorough relaxation, does not aggravate the already begun collapse, is perfectly manageable, quickly passes off when no longer wanted, and leaves no untoward effect behind. One qualification I would, however, make. In the case of ordinary dislocation, I placed chloroform foremost in the list of auxiliaries—in all respects decidedly superior to its colleagues. Here I am not prepared to advise that opium should give way. I would place both on a par; both are excellent; chloroform superior, in being more rapid and certain in effecting muscular relaxation; opium having the advantage of conferring a power on the general system, of sustaining itself under the otherwise overwhelming depression caused by the strangulation. They will do excellently conjoined.

— A paper on this subject, but of quite inferior merit to Professor Miller's able pamphlet, will be found in the April number of the 'Monthly Journal.' In the September number of the same Journal there is an excellent paper, by Mr. Francis Brodie Imlach, dentist, on the employment of chloroform in dental surgery.

— In the 'Transactions of the American Medical Association,'* there is a good report on anæsthetic agents, to which is appended a series of tabular views on the result of operations performed in the States under their influence. We are, however, not furnished with the means of comparing these results with those obtained in the institutions before the introduction of these agents.

§ II.—*Military Surgery.*

2. *The Wounded in the Insurrection of Paris in June* 1848.—With reference to our extracts from M. Velpeau's clinical lectures on the treatment of gunshot wounds in the last Volume of this Journal (Vol. VIII, art. 46), we subjoin the following summary of the observations on the Paris hospitals, extracted from a well-reported series of papers in the 'Medical Times,' by Dr. Kidd.

* The Transactions of the American Medical Association, vol. i. Philadelphia, printed for the Association, 1848.

"The following tabular view represents the ultimate results obtained in the treatment of the wounded of June 1848:

ULTIMATE RESULTS.

Hospitals.	No. of Cases.	Requiring Amputation.	Deaths.	Per Cent. of Deaths after Operation.
La Charité	182	26	10	38
St. Louis	150	12	7	58
	170	52	20	38
Hôtel-Dieu	180	15	9	60
Various other hospitals . . .	—	79	50	63
Total	—	184	96	52

The mean of all this gives a mortality (52 per cent.) exactly twice that already arrived at by comparing the result of similar operations in the hospitals in the Peninsula and the various hospitals in America; in point of fact, one half of those requiring to be operated on after the late events—notwithstanding our advanced surgery, chloroform, collodion, &c.—falling a prey to the operating knife. I have tried already to explain this dreadful mortality in some way; it remains, however, almost unexplainable. It would be easy to speculate, perhaps, still further, to dwell more at length on the peculiarities of the different men's practice. It seems, however, something very like a foregone conclusion, that we have nothing in point of fact to add to our previous knowledge from such debatable materials.

The facts established by the late events are the following:

1st. The appearance of gunshot wounds depends on the time of the occurrence of such accidents; at an early period the wound of entry is larger than that of exit. Suppuration, however, once established, a difficulty exists in distinguishing the two. Further on in the process the characters becoming again well marked, that of entry round, hard, large; that of exit small, prominent; long granulations closing up the latter before the former.

2d. In civil hospitals, contradistinguished from those attached to a moving army, more may be done in the way of saving limbs than has been generally thought possible.

3d. With respect to the removal of foreign bodies, splinters, &c., the mass of evidence is in favour of such a mode of proceeding. Exceptional cases, no doubt, like those mentioned by Jobert, are sometimes met with; where foreign bodies, however, can be removed they should, even at some little risk.

4th. In cases of hemorrhage of a primary nature we must act as in ordinary wounds—tie the artery as near the wound as possible; in consecutive or secondary hemorrhage, on the contrary, we must put on the ligature on the main trunk of the vessel, as far from the original wound as may be indicated.

5th. Hemorrhages which arise from wounds of soft parts rarely occur after the eighth day; while those, on the contrary, which complicate injuries of osseous tissues come on as often after that period.

6th. Secondary amputation should never be thought of as a thing to fall back on. Amputation should be primary or not at all; secondary amputation, even in cases of sphacelus or hemorrhage, being of more than questionable utility.

7th. Débridemens, as the word implies, should be strictly confined to freeing aponeurotic and analogous structures in a state of constriction. In a case at St. Cloud the tendon of the pectoralis major was cut across, and the man left without the use of his arm.

8th. In matters of treatment, our old English way of doing things seems best, cold-water dressings, as a general rule, being preferable to ice; where the skin is broken the latter seems particularly inadmissible, as masking the real danger, and only prolonging the inflammatory process.

9th. As a general rule, the part should be disturbed as little as possible, the pulse and tongue being sufficient indices of the state of health of the patient; foreign bodies of every kind, as regards the wound, should also be guarded against and removed.

10th. Operations should never be performed while the patient is in a state of collapse, the state of the system under the effects of chloroform being an exception.

11th. In injuries of the head, the most formidable cases apparently are not the most fatal, or the most fatal those requiring most care.

12th. Age and mental exertion seemed to have much to do with the rate of mortality: the soldiers, for instance, according to M. Baudens, were cured with difficulty; the officers, with more on their mind, still more so; the generals were not cured at all.

13th. Anæsthetic agents have, in almost every instance, proved highly safe and useful.

14th. The rate of mortality has been much higher than the general experience of such accidents would seem to indicate. Amongst those operated on it has been twice the ordinary average.

— In connexion with this subject, we subjoin also the substance of a Report to the Director-General of the Medical Department of the Navy, by Mr. Wells,* surgeon, R.N.

From the 23d to the 26th of June the streets of Paris were the scenes of conflict between the workmen and lowest order of the population on the one hand, and on the other the soldiery and different classes of national guards. The insurgents firing from behind barricades, or from the windows of houses, were able to take good aim at their assailants, who, in their attacks upon barricades and narrow streets, were almost at the mercy of their opponents. Thus the number of wounded insurgents in the hospitals has been very few, when compared with that of the troops and guards. I have not been able to obtain an exact account of the number of wounded insurgents, but the following is the official report, including among the civilians those of this class who fought on either side.

Return of wounded brought to the civil hospitals of Paris, between the 23d and 28th of June:

	Civil.	Milty. & Guards.	Women.	Total.
Wounded received during this period	773	813	33	1619
Brought in dead . .	127	33	2	162
	900	846	35	1781
Discharged during this period .	51	104	2	157
Died . . .	115	77	3	195
Remaining July 29 . .	607	632	28	1267
,, in ambulances .	,,	,,	,,	364

* Medical Gazette, August 1848.

This does not include upwards of 500 soldiers in the Military Hospital. Thus the killed, and those who died during the five days, amounted to 357, or a proportion of deaths of about 1 in 8 of those taken to the hospitals alive. No autopsies having been made during this time, no accurate report can be given as to the various causes of death. The daily discharges by death or recovery have now reduced the general total to 1100. As some months must elapse before a correct statistical return can be drawn up of the nature of these wounds, and the results of operations or other treatment, my present observations must consist of a few general remarks upon what I observed in the wards.

Almost all the wounds were made by musket-balls; a very few sabre-cuts, some few bayonet thrusts, and contused wounds from splinters, portions of shells, broken stones of the barricades, forming together a very inconsiderable proportion of the wounded. The combatants being very near to each other, the balls struck with a force undiminished by distance, and thus the wounds were generally of a more severe nature than would be met with in a field of of battle when the parties were at a considerable distance from each other; consequently, in a large proportion, the wound is complicated by fracture of the bones, and very often the ball has not lodged, but has traversed the limbs or chest, leaving two openings. In many cases balls have been apparently split into two or more pieces, by striking against bones; in others they have been found very irregular in form, probably from the same cause; while in some cases, balls cast from pieces of old iron or copper, projecting from the sides, have caused considerable laceration of tissues, and difficulty of extraction. In some cases the balls were pierced, and found filled with a white powder, the composition of which has been investigated, but not published. No marked symptoms of poisoning by such balls, however, have been observed. The direction of the wounds is generally from above downwards, and from before backwards, in the troops and national guards. Among the insurgents, a large proportion are wounded about the head and chest, these being the only parts they exposed when firing at their assailants.

With regard to the treatment, the first objects were, of course, to check hemorrhage (which appears, by the by, to have been more abundant, as a general rule, than is commonly observed), and to allow the patient to recover from the state of stupor, collapse, or nervous tremulousness into which he had fallen. Then, in cases of simple wounds of soft parts, either ice was employed, irrigation by cold water, warm fomentations, or poultices, either directly applied or between two cloths. As far as I observed, if the wound was slight it progressed as favorably under any one of these applications as any other; and I saw nothing to shake my conviction that lint wetted with water at the temperature most agreeable to the patient, is the best and cleanest application that can be used. A great diversity of practice prevails as to the extraction of foreign bodies. In the Military Hospital, the surgeons are exceedingly particular in removing every portion of ball, clothing, or splinter of bone that can be detected, thus reducing the case, as they say, to the condition of a simple wound: ice or cold water is then applied as long as the patient can bear it, and when he desires it, warm applications are substituted. At the Hôpital St. Louis, on the other hand, the surgeons, especially M. Jobert, insists upon non-interference with the wound, on the ground that searching for balls is dangerous—that they either become encysted and remain harmless in the part, or excite suppuration, and are discharged. In the same way they say splinters of bone are either removed by suppuration, or remain and assist in consolidating the broken bone. From what I saw in the wards of this hospital, I should be very unwilling to follow the example of M. Jobert; and

I am convinced that the proportion of cases of gangrene and secondary hemorrhage, of erysipelatous inflammation, unhealthy suppuration, and purulent absorption, was far greater in his than in other hospitals. In one of his show cases of the wounded of February, what he calls a cure of a compound comminuted fracture of the head of the humerus, the patient is evidently suffering from the effects of portions of necrosed bone being surrounded by a large deposit of callus. At the Hôtel-Dieu and La Charité, Roux, Velpeau, and Blandin take a middle course, making just sufficient dilatation of the wound to admit of the extraction of foreign bodies or splinters, which can be readily reached, and then applying ointment spread upon charpie, with or without poultices. Gangrene was generally limited to the parts immediately surrounding the course of the ball; but in some cases it extended, and considerable hemorrhage came on after the separation of the slough. I only saw one case resembling hospital gangrene. This was a large superficial wound, and it improved rapidly under the application of slices of lemon by Roux, with whom this is a favorite remedy in such cases. In some cases, gangrene of a whole limb led to the question whether amputation should be performed immediately, or not until a line of demarcation had formed. Velpeau, and most other surgeons, did not wait for the line of demarcation when the gangrene was near the centre of the body, and removed the limb as the only chance of saving the patient's life.

When a wound was complicated by fractured bone, and amputation was not required, in some cases irrigation was employed, in others poultices, but more often the limb was covered with greased charpie, enveloped in broad folds of linen, surrounded by a many-tailed bandage, over which three straw pillows or pads would be fastened by tapes surrounding them, and a long narrow splint which was laid upon each. All this was generally removed and reapplied daily, on account of the quantity of purulent discharge from the wound. No care appeared to be taken to keep the limbs extended or immoveable, and, on the whole, the treatment of fractures in the Parisian hospitals struck me as being far less simple and efficacious than in our own. Wounds of joints were numerous. I saw three cases in which balls undoubtedly traversed the knee-joint: in one, from before backwards through the patella; in the others, from side to side, injuring the condyles of the femur. All are as yet going on well, under the influence of rest and an antiphlogistic regimen.

A great many amputations have been performed, both primary and secondary. Of course as yet no accurate return can be made of their relative success; but common observation would show that the former have been very successful, the latter quite the reverse. The deaths, as far as I could learn, have not exceeded one in ten of the primary operations; while the secondary have been almost uniformly unfortunate in their result. By primary I do not mean immediate amputation, or amputation during the state of stupor or tremor which first succeeds the injury, but when the patient has rallied from this state, and reaction is coming on before local inflammation is set up. From what I saw of the practice in Paris, I should say that if this period were not taken advantage of, it would be far better to wait until healthy suppuration was established in the part, and a sort of hectic had replaced the irritative fever which accompanies the inflammatory condition of the wound before pus is freely formed, than to amputate under the influence of this irritative fever, as some surgeons did, with the belief that they were giving the patient his only chance of life.

The circular operation appears to be commonly preferred to the flap, as an opinion is becoming general that, after three or four years, the stump is a better one than when flaps have been formed. At most of the hospitals the old-fashioned method of dressing stumps is persevered in: whether pins,

sutures, or strapping, are used to bring the edges of the wound together, quantities of greased charpie are laid on, and carried by numerous folds of linen and a bandage. I saw the method M. Baudens lately proposed, of surrounding the limb by a bandage, and then drawing this forward by cotton threads, so as to approximate the lips of the wound. It is better and simpler than the other plan: the limb is cool, and easily kept clean; but I thought three or four sutures or strips of adhesive plaster would have kept up more accurate adaptation of the flaps to each other.

Chloroform is almost universally used, but in two cases appears to have contributed to the fatal result of amputations. One, a patient of M. Robert, died before the operation was completed; the other I saw die in the bed just as M. Malgaigne had completed disarticulation at the shoulder-joint, and feel convinced that chloroform was the immediate cause of death, although M. Malgaigne did not appear to think so. Velpeau, though he uses it in other cases, objects to its employment in cases of gunshot wounds, as he says it invariably increases existing prostration."

3. Mr. Guthrie, in the first of a series of lectures on surgery, has given a large series of statistical tables of the highest value, and which have not hitherto been published, containing *the results of treatment in the British military hospitals in the Peninsula and after Waterloo.* We regret much that our limits entirely prohibit our placing them here on record.*

4. *Hospital Gangrene.*—The attention of the profession has, during this half-year, been again directed to this important subject by Mr. Guthrie† and Dr. Boggie,‡ and as both these gentlemen had ample opportunities during the Peninsular campaign of witnessing the ravages of this disease, their opinions are well deserving of careful attention.

Great Mortality in Hospital Gangrene. (Guthrie.)

RETURN OF THE NUMBER OF CASES OF HOSPITAL GANGRENE WHICH HAVE APPEARED AT THE HOSPITAL STATIONS IN THE PENINSULA BETWEEN THE 21ST OF JUNE AND THE 24TH OF DECEMBER, 1813.

Stations.	No. of cases occurred.	Discharged cured.	Deaths.	Under treatment.	No. operated upon.	———
Santander .	160	72	35	53	25	
Bilbao . . .	972	557	387	28	183	Most of these cases were sent from Vitoria.
Vitoria . . .	441	349	88	4	74	
Passages . .	41	2	2	. . .	. . .	Thirty-seven transferred to Santander.
Vera	. . .	. . .	. . .	. . .	. . .	Vera, being almost on the field of battle, had no case.
Total	1614	980	512	85	282	

The mortality therefore amounted to nearly one third of the whole attacked. This return clearly establishes the importance of a due investigation of the nature, causes, and treatment of so extensive and fatal a disease, and one which must thus necessarily cripple the resources of an army.

* Lancet, November 4, 1848.

† Lectures on some of the most important points in Surgery, by G. J. Guthrie, F.R.S., &c. Lancet, December 1848; Lectures II, III, IV.

‡ Observations on Hospital Gangrene, by John Boggie, M.D., pp. 151. Edinburgh, 1848.

5. *History of Hospital Gangrene.*—The following remarks are extracted from the lectures of Mr. Guthrie.

The most ancient surgeons are supposed to have been acquainted with this disease, even before the introduction of firearms. Celsus, Ætius, Paulus Rolandus describe, under the head of "De carbunculo superveniente vulneri," something very like it. Avicenna in the twelfth, and Rogerus, Brunus, Theodoric, Lanfranc, Bertapalia, and Guido, in the thirteenth and fourteenth centuries, were not less precise. Ferrus, who published, in 1534, one of the first treatises extant on gunshot wounds, was of opinion that they were poisoned, from the appearances of mortification which frequently followed. Parè and Wiseman were both acquainted with this corrosive or putrid ulceration which followed gunshot and other wounds; and believed that if this putrefactive process were not checked, mortification followed, and the death of the sufferers generally ensued. Both these great surgeons treated such wounds by destructive remedies, and by an ointment called Ægyptiacum, composed of equal proportions of powdered alum, verdigris, Roman vitriol, and honey of roses, mixed with a sufficient quantity of vinegar, and boiled together, *secundum artem;* to be dissolved in wine when used, and applied by means of tents, or by a syringe. Avicenna recommended the use of arsenic, the red sulphuret, or the oxide or sublimate, as it was called; but this remedy was considered dangerous, when used as a caustic by being sprinkled on the diseased parts, from the bad effects which were observed to follow constitutionally, its careless or improper employment; and Wiseman particularly recommends the actual cautery, in preference to ordinary caustics, if the sufferers will submit to the application—a proceeding which in the present day stands pre-eminent in utility, when persons will submit to it, not only on account of its being the most efficient and the cheapest of all means which have hitherto been devised, but from its being the least barbarous or cruel in *reality*, whatever it may seem to be in appearance. La Motte was acquainted with this disease, and its general existence at the Hôtel-Dieu of Paris; and of its attacking, not only wounds, but even abscesses after they had been opened; and Pouteau, in his posthumous works, published at Lyons in 1783, well describes the disease, and its most efficient remedy, the "actual cautery." In 1788, Dusassoy, also of Lyons, confirmed the views of Petit. Dr. Gillespie, in 1785, and Sir Gilbert Blane, in 1789, both physicians in the navy, described an incurable phagedenic ulcer "the most destructive complaint incident to a sea life, particularly in a hot climate." They recommended, especially, the application of the juice of limes and lemons to the ulcerated or mortified parts, with such diet as was usually ordered in scurvy. Dr. Rollo, at the end of his 'Treatise on Diabetes,' published in 1797, alludes to a disease of this nature occurring in the Military Hospital at Woolwich, and considered, *rightly*, that it depended on the application of a morbid poison to the sore. To destroy this, he used the oxygenated muriatic acid, diluted, and the nitrates of silver and mercury. Mr. Cruickshank, the celebrated chemist, engaged with Dr. Rollo in inquiring into the nature of this poison, was of opinion that an ulcer in a healing state, might be preserved from it by washing the ulcer, every dressing, with a weak solution of the nitrate of mercury, or of the oxymuriatic acid; and if the disease were actually formed, he recommended the undiluted nitrous acid to be applied to the part.

The surgeons of the Royal Navy about this time added their information to the general stock, particularly Mr. Ballard and Dr. Harness, in 1800, in the fourth volume of the 'Medical and Physical Journal;' and Dr. Trotter, in 1804, published in the different volumes of his 'Medicina Nautica,' several reports on this complaint from different surgeons of the navy, particularly

Mr. Caird, of the "Queen Charlotte;" Mr. Brown, of the "Triumph;" Dr. M'Dowal, in the West Indies; and Mr. Arthur, of the "Belleisle;" Mr. Briggs, of the "Ajax;" and Mr. Jarvis, of the "Indefatigable." Mr. Little, in 1809, who published a pamphlet on the 'Malignant Contagious Ulcer,' says it caused a greater loss to the navy than all the other diseases incident to seamen, and he concluded that it was a specific contagion derived from some *exterior source*. Dr. Thomson, in 1813, Professor of Surgery in Edinburgh, reviewed all these different opinions in his work on 'Inflammation,' but added nothing definite to the modes of treatment then adopted, and which were all of them thoroughly inadequate for the cure of the disease. Nothing important is to be found in the works of Baron Larrey. Professor Brugmans, of Leyden, published, in the 'Annales de Littérature Médicale, Etrangère et Nationale' for July, 1815, an able paper on this disease, which he saw, in 1798, at Leyden, and in 1805, at Amsterdam. Delpech, of Montpellier, did not publish his valuable paper until 1815, although it was read, in October, 1814, before the Institute of France. Mr. Blackadder and Dr. Hennen published their respective memoirs in 1818; and Mr. S. Cooper has summed up the opinions of them all in the late editions of his 'Surgical Dictionary.'

The British army, in Portugal and Spain, had nothing to refer to which could render them any essential service; they had not the opportunity of procuring the books above alluded to; and it was only at the end of the year 1813, when they heard of the success which attended the use of the actual cautery in the French army, that they were led to believe in the essentially local nature of the disease, in the first instance, however, it might be subsequently accompanied, or even preceded, by fever of various kinds.

The battles of Roliça, Vimiera, Corunna, Oporto, and Talavera gave no cases of hospital gangrene, although Dr. Boggie, to whom I have alluded, thinks it was visible among the wounded, on the retreat from Talavera to Merida, and subsequently to Elvas, and more particularly at the Convent of Deleytosa, where the wounded assembled whilst the army bivouacked around it, and at Jaracejo. This convent was an object of particular attention to me, and I always take the liberty of describing it as the slaughter-house of the wounded of the army, for reasons I shall some day explain; but the gangrenes seen in it were the consequences of excess of inflammation under mismanagement, and not of a morbid poison, which requires a longer period to originate than elapsed between the battle of Talavera and the bivouac of Deleytosa. It was only when the unfortunate wounded who survived were sent to Elvas, at the end of 1809 and 1810, that the disease appeared for the first time; and from this moment it was usually to be found in almost all the general hospitals in Portugal and Spain.

6. *Forms and Symptoms of Hospital Gangrene.*—Dr. Boggie distinguishes two forms under which hospital gangrene usually appears, viz.—

1st. The Sloughing and

2d. The Phagedenic,

which for the most part, he says, exist separately, but yet are not unfrequently combined in the same sore.

The symptoms of these two varieties are thus graphically described by Mr. Guthrie:

A wound, attacked by hospital gangrene, in its most concentrated and active form, presents a horrible aspect after the first forty-eight hours. The whole surface has become of a dark red colour, of a ragged appearance, with blood partly coagulated, and apparently half putrid, adhering at every point. The edges are everted, the cuticle separating from half to three quarters of an inch around, with a concentric circle of inflammation extending an inch or two

beyond it; the limb is usually swollen for some distance, of a shining white colour, and not peculiarly sensible, except in spots, the whole of it being perhaps œdematous or pasty. The pain is burning, and unbearable in the part itself, whilst the extension of the disease, generally in a circular direction, may be marked from hour to hour; so that in from another twenty-four to forty-eight hours, nearly the whole of the calf of a leg, or the muscles of a buttock, or even of the wall of the abdomen, may disappear, leaving a deep, great hollow, or hiatus, of the most destructive character, exhaling a peculiar stench, which can never be mistaken, and spreading with a rapidity quite awful to contemplate. The great nerves and arteries appear to resist its influence longer than the muscular structures, but these at last yield; the largest nerves are destroyed, and the arteries give way, frequently closing the scene, after repeated hemorrhages, by one which proves the last solace of the unfortunate sufferer. I have seen all the largest arteries of the extremities give way in succession, and until the progress of the disease was arrested by proper means, the application of a ligature was useless. The joints offer little resistance, the capsular and synovial membranes are soon invaded, and the ends of the bones laid bare. The extension of this disease is, in the first instance, through the medium of the cellular structure of the body. The skin is undermined, and falls in, or a painful red, and soon black patch, or spot, is perceived at some distance from the original mischief, preparatory to the whole becoming one mass of putridity, whilst the sufferings of the patient are extreme. A complaint of this kind cannot long be local, even if a local origin be admitted; and the accompanying fever is usually dependent on the previous state and general constitution of the patient, modified by the season of the year, or the prevailing type of febrile disease.

This gangrenous disease does not always prevail in this its most concentrated form; the destroying process assumes more of a sloughing than a gangrenous character, whence Delpech has denominated it pulpous (*pulpeuse*), rather than gangrenous. It is in its nature almost equally destructive, although not quite so formidable in appearance. It may attack the whole surface of an ulcer at once, or in distinct points, all however rapidly extending towards each other, until they constitute one whole. The red of the granulations becomes of a more violet colour, and the change is accompanied by a burning pain, not usually felt in the part, while a layer of ash-coloured matter is soon seen covering them, which adheres so firmly as not to be readily removed; or if separated, shows that it is a substance formed upon the surface, and constituting a part of the granulations themselves, which are ultimately confounded within it.

About the end of the first week, and sometimes much later, this kind of ulcer becomes more painful, the edges, or the circumference of the wound, assume a browner hue, and the parts become somewhat pasty, the whitish colour of the part particularly affected being opaque, gray, and soft. It may be said that the false membrane, having become very thick, has lost the little vitality it possessed, and become putrid; the discharge which had been partly suppressed, now reappears, not as pus, but as a fetid ichor exhaling the peculiarly offensive stench of this disease. This pulpy, yellowish, putrid substance becomes thicker, and extends deeply; it invades the whole substance of a muscle, under which a probe may be passed, and the instrument brought out through it, with the loss, perhaps, of some striæ of blood, from parts which are not yet actually destroyed; the mass is, however, adherent, although its extent diminishes by the putrefaction and wasting away of its surface.

Dr. Tice, who, as I have stated, had perhaps greater opportunities than any other officer of observing the progress and fatal effects of this disease, in 1812,

in the great hospitals of Coimbra, says: "The ulcer will be seen very often bounded by a red margin, whilst the surface, when cleansed of a brown, streaky, fetid, and sometimes clammy, purulent matter, will exhibit a deep red surface, highly irritable, and disposed to bleed on the slightest touch. On many occasions, the first thing complained of is, that something is burning the wound or sore, and has done so for some hours, and occasionally, on inspecting the wound, the change in the colour of the granulations is not found so great, the discharge is less ichorous and offensive, although the edges have become red and irritable; sometimes a wound or ulcer is affected by spots of discoloration, covered by a viscid, putrid pus, mixed with blood. These spots frequently appear on the discoloured margin, and rapidly extend, so that in a few hours the sloughing surface will have attained thrice the original size of the ulcer.

"When the diseased action in the part has somewhat subsided, and the disposition for healthy action has been in some degree restored by the appearance of a more healthy-looking discharge, the returning granulations may be seen, covered by a thin and delicate covering, through which the vessels below may be perceived on minute inspection. This apparently healthy change is often, however, suddenly arrested, and the disease as rapidly assumes its worst character, as before: this sudden conversion of the complaint is often attended by the most fatal consequences. The occurrence of this change has been portended in some instances by the appearances of a small, bladder-like vesication, or elevation, containing a thin ichor, which elevation appeared to consist of the newly-formed membrane, alluded to as covering the apparently healthy granulations.

"On many occasions in which the disease is slow in its progress towards the sloughing stage, the granulations have appeared to coalesce, their elevations to disappear, and a kind of soft swelling to take their place in some particular part of the ulcer, of an exceedingly irritable and painful nature, bleeding on the slightest touch, and ultimately passing into a state of putrefaction."

7. *Duration of the Disorder.*—The duration of this disease (observes Dr. Boggie) varies in different individuals. If not checked by the operation of remedies, it may continue for a period of from fourteen to twenty days, or even longer; but it often terminates much sooner, sometimes as early as the third, fourth, or fifth day, either in recovery or death.

8. *Nature of Hospital Gangrene.*—From all the phenomena of the disease (says Dr. Boggie), we may be warranted in considering hospital gangrene, especially that form of it named contagious gangrene, to be a peculiar inflammatory action attacking wounded surfaces, varying in its character according to the constitution of the patient, type of the accompanying fever, and other circumstances; nearly allied to erysipelas, if, indeed, it be not a modification of that disease, and depending on a diversity of causes which we shall now endeavour briefly to consider.

9. *Causes of Hospital Gangrene.*—The foul air of crowded hospitals has always been considered a chief cause of hospital gangrene; and that it is so, cannot reasonably be doubted: indeed, the records of public hospitals bear ample proof of the truth of the opinion. But, again, we are told that there is no hospital, however small, airy, or well regulated, where this disease may not at times prevail;* and also that it has been known to appear among wounded who have not been in hospital at all.† Thus (adds Dr. Boggie) it appears that hospital gangrene may exist independently of this as a cause;

* J. Bell, Principles of Surgery, vol. i, p. 103.

† Rollo, on Diabetes, vol. ii, p. 262.

that it is not exclusively confined to hospitals, as has been supposed; and that the vitiated air of such establishments, though considered by some to be the sole cause of the disease, is but one of the many by which it may be produced.

Dr. Boggie enumerates the following seven distinct causes producing this disorder:

a. Particular state of the atmosphere.—It has often been observed that in certain seasons wounds, whether received in battle or in consequence of operations, and even old sores, become affected with gangrene; but what these states are has not been very well ascertained. Hospital gangrene has been known to prevail at all seasons of the year; but, as far as my observation goes (says Dr. Boggie), in hot weather much more frequently and severely than in cold. Indeed, I know of no exception to this fact of hospital gangrene prevailing most in hot weather; and I am, therefore, inclined to consider a greatly heated atmosphere to be one of the most powerfully exciting causes of this disease.

b. Inattention to cleanliness.—This appears to be a very frequent cause of hospital gangrene, and is considered by Dr. Boggie to be the source of the disease in some instances, as it occurred at Passages in Spain, so well described by Mr. Blackadder (On Phagedæna Gangrænosa). And in that form of the disease (he adds further on) which prevailed in the artillery hospital at Woolwich, described by Dr. Rollo, nothing appears to me more clear than that want of cleanliness was the chief, indeed apparently the sole, cause of the disease there.

c. Acrid or irritating applications.—These may be considered another cause, or, at least, may contribute very effectually to the production of this disease.

d. Stimulating food.—It has been thought that the disease may be occasioned by a change of food, as from a vegetable diet to one consisting chiefly of animal matter; and I have myself very little doubt (says Dr. Boggie) that it may contribute to that effect.

e. Intemperance in the use of wine and spirituous liquors.—It is hardly possible to imagine anything more likely to produce hospital gangrene than the abuse of wine and spirituous liquors; and I have been long inclined (observes Dr. Boggie) to consider this as one of the most powerfully exciting causes of the disease. In that very violent form of the gangrene which prevailed at Bilboa, in the summer and autumn of 1813, whatever other cause might have contributed to the production or continuance of the disease, there is not a doubt on my mind that it was rendered much more virulent, and that it was even perpetuated in the hospitals there by the use of wine and other stimulants injudiciously administered.

f. Motion or mechanical irritation.—This is a much more frequent cause of hospital gangrene than has been imagined.

g. Specific contagion.—When the disease is once produced, although the same causes continuing to operate may be sufficient to keep it alive, it appears probable that a contagion is generated, and that the disease may be propagated in this way to a certain extent at least, although the causes by which it was originally produced should have ceased to act.

That the disease is contagious or infectious (says Dr. Boggie further on) cannot, I think, be doubted.

10. *Treatment of Hospital Gangrene.*—The treatment may be divided into general and local.

a. General treatment.—In the early stages, and when used with caution, and in cases where it is really applicable, Dr. Boggie considers *general bloodletting* to be a most valuable remedy. *Emetics* he has seen used, and sometimes with advantage, but considers them much inferior to *cathartics.* These

appear to be the remedies, next to bloodletting, the best calculated for lessening arterial action in inflammatory diseases; and the use of them was indicated in cases where that remedy was inadmissible, or, at least, not so much required. Among the poor in civil hospitals, purgative medicines will be found in this disease, unless in very extraordinary cases, to be the most useful, indeed the safest, evacuants.

In the latter stages, opiates, bark, vegetable and mineral acids, are all recommended.

b. Local treatment.—There are few diseases in which a greater variety of topical applications has been applied, and to enumerate them all would be useless. Those, however, of any efficacy may be comprised under three classes, viz.—

Sedatives,
Escharotics,
Stimulants.

When the inflammation continues violent, Dr. Boggie recommends the local application of sedatives in the form of cold-water dressings, poultices, &c.

When the inflammation abates, and the slough separates, stimulating dressings ought to be had recourse to. Nothing appears here to answer better than a weak solution of the sulphate of zinc.

Should, however, the sloughs continue to adhere after the inflammation has abated, some stimulating application, as the dilute nitric or muriatic acids, must be had recourse to, or even the stronger escharotics, as the concentrated mineral acids, the actual cautery, &c. The latter remedy is much in favour with French writers. In British military practice the strong mineral acids are more generally used, and recently on the banks of the Sutlej proved most successful. Thus the surgeon of the 29th Foot writes from that place, "in the treatment of this disease I proceeded regularly on one plan, and found that so efficacious that I was not inclined to try any other. The plan adopted was, the application of the strong nitric acid, so as completely to cut off the diseased from the sound part, or so far sound part as only to be affected with inflammation. The acid, however, required to be rubbed in with the blunt end of the probe, so that it not only destroyed the cuticle, but killed the cutis vera, and probably the cellular membrane underneath. The narrow yellow ring of dead skin thus formed, separated like a piece of leather, generally carrying with it the whole slough, and leaving a clean, healthy surface, as well as edges to the wound. I never attempted to apply the acid to the surface underneath the slough, neither is such application necessary; the vital seat of the disease is on its circumference, however large its area. I must admit that the disease sometimes crossed the acid boundary, and a second, and even a third application of the remedy was required, but this was rare." (Report by Mr. Taylor, surgeon H.M. 29th Foot, quoted by Mr. Guthrie.)

11. *General Conclusion drawn by Mr. Guthrie regarding the Nature and Treatment of Hospital Gangrene.*—1st. Hospital gangrene never occurs in isolated cases of wounds.

2d. It originates only in badly-ventilated hospitals crowded with wounded men, among and around whom cleanliness has not been too well observed.

3d. It is a morbid poison remarkably contagious, and is infectious through the medium of the atmosphere applied to the wound or ulcer.

4th. It is possibly infectious, acting constitutionally, and producing great derangement of the system at large, although it has not been satisfactorily proved that the constitutional affection is capable of giving rise to local disease, such as an ulcer; but if an ulcer should occur from accidental or

constitutional causes, it is always influenced by it when in its concentrated form.

5th. The application of the contagious matter gives rise to a similar local disease, resembling and capable of propagating itself, and is generally *followed* by constitutional symptoms.

6th. In crowded hospitals the constitutional symptoms have been sometimes observed to precede, and frequently to accompany, the appearance of the local disease.

7th. The local disease attacks the cellular membrane principally, and is readily propagated along it, laying bare the muscular, arterial, nervous, and other structures, which soon yield to its destructive properties.

8th. The sloughing of the arteries is rarely attended by healthy inflammation, filling up their canals by fibrine, or by that gangrenous inflammation which attends on mortification from ordinary causes, and alike obliterates their cavities. The separation of the dead parts is therefore accompanied by hemorrhage, which in large arteries is usually fatal.

9th. The operation of placing a ligature on the artery at a distance, or near the seat of mischief, does not succeed, from the incision being soon attacked with disease, unless it has been arrested in the individual part first affected, and the patient has been separated from all others affected by it.

10th. The local disease is to be arrested by the application of the actual or potential cautery. An iron heated red-hot, or the mineral acids pure, or a solution of arsenic or of the chloride of zinc, or other caustic which shall penetrate the sloughing parts, and destroy a thin layer of the unaffected part beneath them.

11th. After the diseased parts have been destroyed by the actual or potential cautery, they cease in a great measure to be contagious, and the disease incurs less chance of being propagated to persons having open wounds or ulcerated surfaces. A number of wounded thus treated are less likely to disseminate the disease, than one person in whom constitutional treatment alone has been tried.

12th. The pain and constitutional symptoms occasioned by the disease, and considered as distinct from these symptoms, which may be dependent on disease endemic in the country, are all relieved, and sometimes entirely removed, by the destruction of the diseased surface; which must, however, be carefully and accurately followed to whatever distance and into whatever parts it may extend, if the salutary effect of the remedies is to be obtained.

13th. On the separation of the sloughs, the ulcerated surfaces are to be treated according to the ordinary principles of surgery. They cease to eliminate the contagious principle, and do not require a specific treatment.

14th. The constitutional or febrile symptoms, whenever or at whatever time they occur, are to be treated according to the nature of the fever they are supposed to represent, and especially by emetics, purgatives, and the early abstraction of blood, if purely inflammatory, and by less vigorous means, if the fever prevailing in the country is of a different character.

15th. The essential preventive remedies are separation, cleanliness, and exposure to the open air—the first steps towards that cure which cauterization will afterwards in general accomplish.

§ III.—*Injuries and Diseases of the Arteries and Veins.*

12. *Treatment of Aneurism by Compression in America.*—In connexion with the corollaries of Dr. Bellingham on the treatment of aneurism by compression, which will be found in Vol. VIII of the 'Half-Yearly Abstract,' art. 58,

we subjoin the following condensed view (by the editor of the 'Monthly Journal') of some cases reported in the 'American Journal of Medical Science,' Oct. 1848:

Five cases of aneurism have been treated in this way, in the practice of Drs. Buck, Rodgers, and Watson, of New York, Knight, of New Haven, and Mutter, of Philadelphia.

The first case was one of femoral aneurism, in which pressure was fairly tried and did not succeed, and it became necessary at last to resort to the operation by ligature.

The instance which occurred to Dr. Rodgers was that of a negro seaman, aged 47, who, two months before, observed a swelling in the popliteal region, which arose after a fall. The tumour was of the size of a duck's egg, and the symptoms of aneurism were well marked. He entered the New York Hospital, and on the 15th of January, 1847, pressure was made upon the artery near the groin by means of an arterial compressor. This was continued till the 12th of February; but it being found impossible to effect the desired object with it, Dr. Rodgers substituted another, consisting essentially of a metallic plate placed upon the inner side of the thigh over the vessel, having three holes at short intervals through which screws passed, each having at one of their extremities a firm pad, and at the other a projection to which a key was adapted, by means of which pressure could be made upon the femoral artery at the different points. This metallic plate was secured over the artery by means of broad straps attached to a sliding plate of steel, secured in a metallic bar, applied longitudinally to the back of the limb.

Soon after the adjustment of this instrument, it was ascertained that the patient loosened the screw in the absence of his attendant. He was now watched night and day for three days, by the end of which time all pulsation in the tumour was entirely arrested. The swelling gradually subsided to half its original size. The only inconvenience experienced by the patient was a numbness of the limb upon the first removal of the instrument, but this soon left him, and he was discharged cured on the 13th of April.

The case of Dr. Watson was one of femoral aneurism, treated also at the New York Hospital. The subject of it was an intemperate Irish woman, aged 38. The tumour, which was hard and painful to the touch, had existed for a month, and extended from the upper and inner third of the thigh to within a finger's breadth of the internal condyle of the femur, and at the point of its greatest circumference, reached from the inner border of the rectus muscle to the middle of the outer side of the thigh.

At mid-day, on the 23d of September, 1847, pressure was made by means of two pads secured to circular straps over the artery, with counter-compresses on the outer side of the thigh, the pressure produced being regulated by a screw which acted directly upon the pads over the vessel. The first compress was fastened over the artery just as it emerges from beneath Poupart's ligament; the second, a short distance below it, and both were so arranged as partially to control the circulation in the tumour, the pressure being regulated by alternately tightening one compress and slackening the other, in order to prevent abrasion of the integument.

On the 24th the patient was restless; on the 25th she complained greatly of cramp and pain in the leg, which was much swollen, to relieve which a roller was applied and the limb elevated on a pillow.

By the 26th all pulsation had left the tumour. The upper compress was now removed—sixty-eight hours having elapsed from its first application, and very slight pressure was kept up by means of the lower one. No return of pulsation followed the removal of the compress, and in an hour afterwards the

lower pad was also taken away. The skin beneath the upper compress had become somewhat abraded by the pressure, which required the application of a poultice, and subsequently simple dressings for a few days.

On the 28th no pulsation could be detected in the tumour, or in the femoral artery below the point, upon which the upper pad had rested.

By the 28th of October the tumour had much diminished in size, and become softer.

On the 12th of November, nearly two months subsequent to the commencement of the treatment, she left the hospital well, the tumour still gradually becoming smaller. There was no pulsation to be detected in the anterior or posterior tibial arteries, or at any point below the giving off of the profunda; and the femoral artery itself below that point was felt like a solid cord beneath the integument.

The case furnished by Dr. Mutter was that of a book-keeper, aged 41, whose general health was feeble, and who, six weeks previous to the 24th of Sept., 1847, had been seized with stiffness in the right ham, which was soon followed by a pulsating tumour of the size of a turkey's egg. After a few days' rest in the horizontal position, his treatment was commenced by applying a roller to the limb in order to prevent swelling, and the application of one of Charrière's compressors, with a small oval pad over the femoral vessel, where it passes down to become popliteal, and another similar compressor with a larger pad over the artery at the upper third of the thigh. The limb was then placed upon an inclined plane. After remaining in this position for twelve hours, the lower compressor was tightened until all pulsation ceased in the tumour. The pain produced by this procedure was severe, and could only be borne at first for half an hour. When it became insupportable, the upper compressor was screwed down, and the pressure from the lower one removed. The patient supported the pressure above for two hours without much difficulty; it then became annoying, and, in order to relieve the suffering, the lower compressor was again tightened.

By thus alternating the points to which it was applied, the necessary amount of pressure was kept up without excoriation, or any other injurious consequence resulting, and from the peculiar construction of the instruments, and the previous application of the roller, the swelling of the limb was trifling. During the treatment, the diet of the patient was restricted, and digitalis was administered to him.

By the 12th day the tumour was reduced to about half its original size, had become solid, and was free from pulsation. Notwithstanding these circumstances, Dr. Mutter did not consider it safe to allow his patient to move about, or even to relax the treatment, but continued to pursue the same course, with slight modifications, for six weeks longer. At the expiration of this period the tumour had nearly disappeared, the collateral circulation was fully established, and the disease radically cured.

Dr. Knight's case, which is peculiarly interesting, from the novel manner in which the pressure was made, and quickly effected a cure, was that of a mulatto man, aged 48, in whom a popliteal aneurism had existed for several months. The aneurismal tumour, which was well marked, filled up the whole popliteal space. The leg was very painful and œdematous. After the œdema was removed by rest and other appropriate treatment, pressure on the artery, by means of the hoop tourniquet, the calliper-shaped instrument, the common tourniquet, guarding the limb against pressure of the strap by encasing it with thick sole-leather, and by a variety of other mechanical contrivances, was fairly tried. By whatever instrument, however, the pressure was made, and however carefully it was guarded, whether continued on one point only, or shifted

from one part of the artery to another, the pain became in a short time so severe that it could not be endured. The pain complained of was not in the part pressed upon by the instruments, but was felt equally in the thigh and below the knee, and occurred whether the limb was left uncovered or was enveloped in a roller. It usually began in twenty-five or thirty minutes after the pressure was made, and became intolerable in fifteen or twenty minutes longer, and could be continued in no instance beyond one hour. These efforts were persisted in for eight or ten days, and as nothing had been gained at the end of that time, were abandoned. Before resorting (says Dr. Knight) to the ligature of the artery, I concluded, with the concurrence of his physician, Dr. Tyler, to try manual pressure upon the vessel. "To accomplish this, a sufficient number of assistants were procured from the members of the medical class, who cheerfully offered their services. They were divided into relays, two keeping up the pressure for five or six hours, relieving each other every hour or half hour, and these succeeded by two others. Sufficient pressure to arrest the pulsation in the tumour was found to be most easily made with the thumb or fingers, without a compress, upon the artery as it passes over the os pubis, and the direction given to the assistants was to keep up this amount of pressure as nearly continuously as possible." This treatment was commenced at three o'clock, p.m. No pain of consequence was produced by it for five or six hours, and then it was not severe, and was quieted by the eighth of a grain of morphia once or twice repeated. About eight hours after the pressure was applied, the temperature of the limb was diminished, and it appeared shrunken in size. Upon removing the pressure from the artery at eleven o'clock of the following day—twenty hours from the commencement of the treatment—the tumour was found to have diminished very little, if at all, and pulsated as strongly as before; but the tibial arteries could not be felt. The treatment was continued. Upon examining the parts the next morning, forty hours after the treatment was begun, the tumour was found to be nearly one third less in size, firm and unyielding on pressure, and entirely without pulsation. All treatment was then discontinued. The femoral artery pulsated with its usual strength in the groin, and distinctly as far as its passage through the tendon of the adductor muscles. Between this point and the tumour it could not be felt. Several of the anastomosing arteries, especially one upon the inside of the limb, could be distinctly traced passing over the knee, pulsating strongly, and enlarged in size. From that time to the present—a period of more than four months—no change has taken place in the limb, except that the tumour has gradually diminished, so as now to be scarcely discoverable, and that the leg, which was at first cold and weak, has nearly regained its natural temperature and strength.*

— In addition to these cases, the following remarkable case is reported in the 'New York Journal of Medicine' for July 1848. The subject of the case was a coloured man, aged between 50 and 60, in whom Dr. Hosack tied the femoral artery at the lower part of the upper third of the thigh for popliteal aneurism, about the size of a small goose-egg. Upon securing the artery in the ligature, all pulsation in the tumour ceased; the wound being dressed in the ordinary way, healed kindly in the usual time, casting off the ligature on the 26th day; after which the swelling continuing gradually to decline, left the patient to all appearance perfectly well, with the exception of a slight halt in his gait, which entirely disappeared after a few weeks. About the middle of the following August he returned to Dr. Hosack with the tumour of nearly the size it was at the time of the operation, but it had not the same elasticity, and was more solid to the feel. Pulsation was distinctly to be perceived in

* Transactions of the American Medical Association, 1848.

the tumour, and could be detected in the femoral artery quite up to the point at which the ligature had been applied, as well as in the tibial branches, but with diminished force. Under these circumstances, Dr. Hosack determined to make trial of compression. Preparatory to the application of the instrument the patient was directed to remain quietly in bed for three or four days, which being complied with, the instrument was adjusted, and pressure exerted upon the femoral artery, so as to arrest completely all pulsation in the tumour; after an hour or more it became necessary, in consequence of pain produced by pressure, to shift the pad an inch or more from the point just compressed, and so changed from time to time, as circumstances required; but having one plate or pad instead of three (the other two being an addition of Dr. Rodgers, which certainly is an improvement), Dr. Hosack was compelled to make compression upon the artery as it passes over the pubis, while changing the position of the pad. The instrument was thus continued until after the fifth day, when, finding no pulsation in the tumour, it was removed. After a lapse of a fortnight or more, a slight thrill was to be detected in the aneurismal sac, when the instrument was reapplied for thirty-six hours longer, varying the pressure on the artery as circumstances required. Pulsation or thrill being no longer discoverable in the tumour, which had now become more solid, compression was taken off; since which time the patient has been able to take exercise, and attend to his usual occupation, being perfectly restored to health.*

— In the Report of the Committee on Surgery, in the 'Transactions of the Americal Medical Association,' already quoted, there is a very favorable summary of the results of this method of treatment.

13. *On the Operation for Tying the Subclavian Artery internal to the Scaleni Muscles.*—Dr. Hargrave† has endeavoured recently to investigate this subject.

The statistics for securing the right subclavian artery in the first part of its course, or internal to the scaleni muscle, afford, as Dr. Hargrave well observes, a melancholy and almost desponding history of this operation as to its ever being successful. Every case on record of securing this vessel (*ten*) has been a failure, whether performed in Great Britain, in Ireland, in the colonies, or elsewhere; to all the same fatal termination—death, and all by the same fatality—hemorrhage.

The following are the four causes to which Dr. Hargrave attributes the failure of this operation:

1st. To the anatomical position and relations of the vessel.

2d. To the great disturbance, perhaps destruction, of the nutrition of the artery caused by the difficulty of the operation.

3d. To the tension of the artery after the ligature is tied.

4th. To the pathological conditions of the artery itself.

"Such," he adds, "after considering each of these in detail, seem to me to be the causes which mainly act in rendering the operation as hitherto performed unsuccessful: can any of them be obviated? I incline to the opinion that the chief one can—namely, the impediment to a quiescent, if not an absolute, state of repose for the artery, the want of which has already been pointed out."

It has been proposed to facilitate the operation for securing the vessel in question "*to saw the clavicle*," which would certainly afford more space for the subsequent dissections. This suggestion is borne out by perform-

* Monthly Journal, December 1848.

† Observations on some Practical Questions in Surgery. Dublin Quarterly Journal, February 1849.

ing the operation on the dead body. Cruveilhier has also advocated such a practice.

14. *New Method of Operating—Section of the Clavicle.*—It is this step in the operation which I would again propose, not so much for the facile exposing of the artery, but to allow it to be gently relaxed. After having been secured, the section of the clavicle would allow this to be done, by permitting approximation of the shoulder to the trunk, and so remove any strain or tension that the ligature might cause on the artery. It would also remain more imbedded in the surrounding cellular membrane, and receive the supply of blood more freely to assist in the sanitary processes consequent on the operation; while the movements of the upper extremity would produce little, if any, disturbing effects upon the artery.

Mode of performing the operation.—The mode of conducting the operation I propose would be, after the vessel was exposed and encircled in the ligature, carefully to saw through the clavicle about its middle, having previously guarded the subjacent parts with a spatula. If any alterations followed this step in the relations of the artery, they would be of little consequence, it being noosed prior to the section of the bone; no delay or hinderance would then prevent the tying of the artery. The action of the muscles which draw the shoulder to the trunk, as the subclavius and pectoralis minor, should then be aided by position, and the arm retained *in situ* by a bandage.

15. *On the Utility of Double Ligatures for certain Arteries.*—In the 'Monthly Journal' for March, 1849, we find a communication on this subject quoted from the 'Gazette des Hôpitaux,' by M. Chassaignac. The object of this paper is not to inculcate the use of the double ligature as a general rule, but merely to point out what the author considers its benefit in certain special cases, especially in that of the common carotid. He points out, first, that when a ligature is applied to the carotid, it is subjected to a double shock at each pulsation—one direct from the heart to the artery, the other propelled from the terminal divisions of the artery towards the trunk of the vessel; in a word, he calls the first of these the direct or cardiac impulse—the second, the indirect or recurrent impulse. Admitting then, he says, that it has been shown that every ligature applied on the carotid is subjected to a double impulse on the part of the blood, which strikes against it both by the direct and indirect current, I consider this circumstance as likely to give rise to the premature falling off of the ligature and secondary hemorrhage. Is not the means to avoid this double impulse on one ligature to apply two distinct ligatures—the one to bear the direct, the other the indirect impulse? We oppose a double resistance to a double force. But there is one particular case in which, perhaps more than all others, it is of importance to avoid the indirect impulse; that is, when a ligature is applied to the carotid, according to Brasdor's method, in a case of aneurism of the innominata. What do we propose by this method of operating? Is it not to obtain, as far as possible, the coagulation of the blood in the aneurismal sac? But it is known that all movement obviates this coagulation, and, therefore, the indirect impulse against the ligature can only be regarded as an unfavorable condition; the way to remedy it is to apply a double ligature.

As conclusions from the preceding statements, he submits the following propositions:—1. If the double ligature ought to be rejected as a principle of general rule, this practice ought not to be absolutely condemned without exception, and indiscriminately. 2. Every ligature applied to the carotid ought to be considered as subjected to the constant action of a double impulse—the

one *direct*, the other *indirect*. 3. It is useful to apply a double ligature to the common carotid, as well as to every large artery which presents a strong recurrent circulation. 4. The use of this double ligature is still more obvious in cases where the carotid artery is to be tied in operating by the method of Brasdor.

16. *On the Employment of Ligatures formed of Animal Substances.*—In the same journal we find a communication on this subject by Mr. Wragg. The substance which Mr. Wragg prefers is the fibrous tissue of the deer dried, then twisted so as to form a small round thread, smooth and regular on the surface, non-elastic, sufficiently strong to resist the traction made on it by the surgeon in tying the knot. The mode of preparing these ligatures appears to the author to be a matter of great importance, and one capable of insuring or compromising the success of the operation. These tendinous slips ought to be dried slowly, and not used until all the moisture has disappeared; the author prefers those which have been dried for some years. One objection that might be raised against these ligatures of animal substances is, that they do not determine the degree of inflammation necessary for the obliteration of the artery; but this fear must yield to the testimony of all the surgeons who have found in this practice a sufficient hæmostatic remedy. This is not the reason why it has been rejected by some medical men, but rather because they doubted whether the substance of these ligatures could be effectually absorbed, and disappear amongst the tissues; the experience of Mr. Wragg fully replies to these apprehensions. During the ten years that he has employed these ligatures he has never used any others; and during this period he has tied arteries in the fingers, hand, fore-arm, arm, leg, and thigh, and has never seen any symptom to show that the absorption of the knot had not taken place.

§ IV.—*Injuries and Diseases of Bones.*

17. *Compound Dislocation of the Humerus.*—Under the section of rare surgical cases, art. 62, we have recorded a case of this rare accident, compound dislocation of the humerus, as recorded by Mr. Haynes Walton.* The following remarks, appended by Mr. Walton to his paper, will be read with interest in connexion with this rare case:

The only two similar cases which have been recorded are narrated by Sir Astley Cooper and Mr. Fergusson. I shall first give that of the former author. (Work on Dislocations, page 450.) "The accident occurred in the practice of Mr. Dixon, of Newington, who thus describes it to Sir Astley Cooper. Robert Price, 55 years of age, on returning in a state of intoxication from the Borough, fell down upon his shoulder. Upon examination, I found the head of the bone had passed through the integuments of the axilla, lying exposed upon the anterior part of the chest, and situated over the pectoral muscle on the right side. The reduction of the dislocation was easy, being performed without the necessity of raising him from the state of stupor and insensibility he was lying in, by the usual method of extension and counter-extension, taking care only to guide the bone into the glenoid cavity; he was then put to bed, and an evaporating lotion applied. On the following morning, considerable pain and tension had come on; he was bled and purged freely; a large poultice was applied over the joint, and anodynes given to lessen pain and procure sleep; leeches were frequently applied in the neighbourhood of the joint for the first ten days, or fortnight, after which a copious discharge of pus issued

* Medical Times, November 18, 1848.

from the wound in the axilla. The constitution now felt the effects of so important an injury; he became irritable, fretful, and lost flesh; healthy pus was now discharged freely from the joint for ten or twelve weeks, when it somewhat abated. A succession of small abscesses, situated in the cellular membrane surrounding the joint, were exceedingly troublesome for several months, some of which formed extensive sinuses and required to be freely dilated. The discharge of pus was kept up from the joint for nearly twelve months, when it finally ceased, leaving the joint anchylosed, and the wound closed. He was quite recovered in fourteen months from the accident, at which time he called on me, and felt gratified by showing how freely he could make use of the fore-arm, and handle the pen for all the purposes of business. He is still living in Paradise row, Stockwell, and employed by the parish of Lambeth as a collector of assessed taxes."

Sir Astley Cooper makes the following remarks:—"Such a case will require an immediate reduction, by the means which I have described for the dislocation of the os humeri forwards; and, in general, the more violence done to the injured limb, the more easy is the reduction, from the diminution of the constitutional powers which so great a shock produces. When the bone is replaced, lint dipped in blood is to be applied to the wound; or, if the wound be large, a suture should be employed, and then the lint applied. Adhesive plaster should be used to support approximation, and the limb must be kept close to the side by means of a roller applied round the body, and including the arm, thus preventing the least motion of the head of the bone; by these means the suppurative inflammation may be prevented, and the cure proceed without protracted suffering, or any danger to the patient's life."

Mr. Fergusson, in his 'Practical Surgery,' page 198, says: "I have seen one example of compound luxation of this joint. It was occasioned by the spoke of a large water-wheel, which, in revolving, came in contact with the arm, caused a rent through the deltoid and skin, and thrust the end of the humerus prominently outwards. The patient, though stunned, was not seriously injured elsewhere; yet it was thought advisable to amputate. The state of shock continued for several hours; and the operation, partly on this account, and also to give time to procure instruments, was delayed till next morning. Meanwhile the head of the bone was replaced, which was easily done, and the edges of the wound were brought together. When the surgeons met again, the man seemed in such a favorable state, and the parts looked so well, that it was wisely resolved not to use the knife. The wound closed without a bad symptom, a slight synovial discharge continued for about three weeks, and some months after I saw this individual in excellent health, and already able to make a tolerable use of the injured arm."

Although the three cases possess the common feature of dislocation with external wound, they differ in the direction assumed by the head of the humerus, as also in other particulars that I need hardly point out.

It is surprising that the integrity of the humerus, in my case, should have been preserved, since the application of the force was through the shaft of that bone, and, in all probability, was applied about its middle; for the shirt and jacket-sleeves were much torn at that spot, and uninjured at any other part. The mobility of the scapula, whereby it accommodates itself to the motions of the arm, together with the dislocation occurring at the weakest part of the joint, must, I think, be considered as circumstances tending to prevent fracture. From the extent of damage done to the soft parts, and particularly to the skin, it is evident that the humerus must have been greatly twisted, and carried from before to behind, or in the opposite direction, with great violence. In Mr. Dixon's case the violence was received at the head of the bone, and

therefore fracture was not a likely complication. It cannot be gathered, from Mr. Fergusson's description, the precise manner in which the accident he relates occurred.

I cannot refrain from noticing the important lesson the latter case inculcates. The fortunate occurrence of delay resulted in the salvation of the patient's arm. How many parallel results have been obtained, and what practical information has accrued from circumstances that appeared to be untoward interruptions to the surgeon's intentions!

From the result of these three cases, it must now be received as a settled point, that, in compound dislocation of the humerus, without injury to the great blood-vessels or to the brachial plexus of nerves, as a general rule, the proper treatment is, to reduce the dislocation, and endeavour to effect union of the lacerated parts. That instances might arise in exception to this rule, no practical surgeon will doubt; but it would be out of the scope of this paper to say more than is necessary to point out the fact that the cases related establish.

There was no difficulty in reducing the dislocation. I was not aware when the head of the bone returned to the glenoid cavity; it was by passing my finger into the wound during the extension, to ascertain what progress was being made, that I discovered the reduction had been accomplished; probably it had been effected in a shorter time than is specified in the notes.

The suppuration at the side of the chest seemed to have been in the tract of detached skin, for pus escaped at the axilla when pressure was made on the collection at the side; but as its discharge could not be naturally effected through the wound, I made an incision for its free exit. The patient's recovery was decidedly rapid: in twenty-four days the arm was liberated from all bandages, and he performed the under motions tolerably well. On the 11th of March the wound had quite healed. There was very little bleeding when the accident occurred. Although a large piece of the latissimus dorsi muscle was removed, that muscle still retained some connexion with the humerus.

I saw the patient two years after his dismissal from the hospital: he was pursuing his usual avocations; he had gained power in the use of the arm, and could nearly raise it at a right angle to his body. The deltoid muscle was quite atrophied: this must, I suppose, be attributed to injury of the circumflex nerve.

18. *Excision of the Head of the Femur.*—In the last Volume of this Journal will be found an abstract of a paper by Mr. Smith on this subject (art. 62), and in the Report on Surgery in the same Volume, some observations are made on the objections against this operation urged by Mr. Norman.

Since the date of these articles, Professor Syme, whose opinion is entitled to the highest respect on all points connected with the science of surgery, has expressed an unfavorable opinion of this operation. We subjoin a summary of the consequent discussion, as contained in the 'London Journal of Medicine.'*

A difference of opinion exists between Mr. Syme, of Edinburgh, and Mr. Fergusson, of London, as to *the operation of excision of the head of the femur.*

Four years since, Mr. Fergusson revived the operation, which had been performed with success, about thirty years previously, by Mr. Anthony White. Mr. Fergusson's case was entirely successful; and, in consequence of this, he has recommended the operation for certain cases. He and other surgeons have since resorted to the operation with more or less satisfactory results. Mr. Syme, however (perhaps from an imperfect knowledge of the facts), has entered a strong protest against the proceeding; and argues that it should

* Feb. 1849.

never be put in force. He says, in a clinical lecture reported in the 'Medical Times' for December 30, 1848: "If caries supervene, no human means can remove the disease. Lately, in some of the London hospitals, it has been attempted to cure the disease by removing the carious head of the femur; but this is improper, as caries of the joint never exists without the bones of the pelvis being equally involved. I regret that these operations should have been attempted, as they tend to throw discredit on the excision of other joints —such as the elbow, where the practice is eminently useful, and which has now become an established operation in surgery. If the disease admits of recovery, excision of the head of the thigh-bone is superfluous and useless. If it does not admit of recovery, cutting out the head of the thigh-bone can only hasten the fatal termination. If the patient recovers after the head of the bone has been cut out, it is a distinct evidence of the uselessness of having excised it. If caries is curable, why amputate the head of the bone? If incurable, why remove the head of the bone, and, at the same time, leave behind carious portions in the acetabulum, which cannot be removed? Common sense, and their unsuccessful results, will, no doubt, ultimately show the impropriety of such operations."

These remarks of Mr. Syme are commented upon by Mr. Henry Smith, in the 'Lancet' for January 6, 1849. This gentleman was formerly house-surgeon to King's College Hospital, and has had the opportunity of witnessing and assisting in the operations of excision of the head of the femur, performed by Mr. Fergusson. He has specially studied this subject, and is the author of an essay on the operation. He considers that Mr. Syme's main objection to the proceeding does not hold good; that his assertion that "caries of the joint *never* exists without the bones of the pelvis being equally involved," is neither in accordance with facts ascertained by the pathologist, nor by post-mortem specimens of the disease; and that it is rendered invalid by the results of the operation itself, which has proved successful both in this country and abroad.

The circumstance of disease implicating the pelvis, in a great number of instances, is a serious objection to the operation; but yet the existence of a moderate amount of disease in the acetabulum should not, Mr. Smith alleges, prove a bar to the performance of the operation, where there is no other contra-indication, as it may be got at and removed by proper instruments, "in the same manner as carious portions of the scapula may be removed in the operation of excision of the head of the humerus."

With respect to Mr. Syme's other objections, Mr. Smith states, that it is not in those cases which admit of cure, that the surgeon would perform the operation; but that it is in cases where the affection has gone so far, that there is no hope of saving the patient by any other means, and there is good reason to suppose that the head of the bone is alone, or chiefly diseased, the surgeon is justified in resorting to it.

In the 'Lancet' of January 21 are reported some clinical remarks, delivered after an operation, performed on the 13th January 1849, by Professor Fergusson. His views, as there expressed, are similar to those of Mr. Smith, and entirely opposed to those of Mr. Syme. He strongly recommends excision of the head of the femur in certain instances; and says that the disease involving the acetabulum, to a certain extent, is not an absolute objection to the operation, as this diseased portion may be removed. He points out that, in some instances, when the cotyloid cavity has been originally attacked, the disease stops, and a deposit of new bone takes place, filling up the cavity, as was found to be the case in the patient he had just operated upon; whilst if the head of the bone be extensively carious, there is little probability of its separating; therefore the surgeon is called upon to do the operation.

Thus it appears that two of our most eminent surgeons promulgate opposition opinions respecting a most important point of practice. Mr. Syme, we think, is premature in his summary condemnation of the operation. It is true that there are great difficulties connected with the selection of cases; but it is equally true, from the results obtained by Mr. Fergusson and others, that it may, in certain instances of hip disease, be undertaken with great propriety; that life may be saved, and a limb, more or less useful, preserved.

— Mr. Fergusson has again reiterated his views in a clinical lecture on hip disease, 'Medical Times,' April 7, 1848.

§ V.—*Injuries and Diseases of the Head and Neck.*

19. *Observations on Enlarged Tonsils.*—The following observations are deduced by Dr. Hamilton, M.D., of Buffalo,* from the history of fifty-two cases which have come under his observation:

Pathology.—In all the cases the glands have been simply enlarged and slightly indurated, except that in six or eight instances a few small tubercular deposits have been found in them. I have never seen them scirrhous, or affected with any other malignant disease. Of some fifty or more preserved in alcohol, and in the College Museum, not the slightest difference can be seen in their structure; and as to size, the largest is not more than sixteen lines in length, and eight in breadth.

Etiology.—Among the causes assigned by the parents and friends, or by the patients themselves, ten are set down as attributed to scarlatina, seven to hooping-cough, three to croup, eighteen to hereditary predisposition, as shown in its having occurred in the parents or other members of the family, and the balance are unaccounted for. Many of these patients had a scrofulous look, and some had, at the same time, enlargements of the lymphatic glands of the neck.

Age at which the enlargement was first noticed.—Generally between the third or fourth and seventh year of life: from which time they gradually increased in size until the tenth or fifteenth year, or until they were removed.

Effects and results when left to themselves.—They gradually diminish in size after the tenth or twelfth year, and finally disappear, or rather, become reduced to their normal size; so that it is extremely rare to see enlarged tonsils after the twentieth year. I have never seen but one after the twenty-seventh year, and this was at the forty-second year, but the enlargement was moderate.

In the meantime, however, or, at least, during all the period of childhood, the patient is liable to frequent attacks of acute tonsillitis, which alone are sometimes sufficient to permanently impair the health; to a serious impediment in speech and hearing, both of which I think may become permanent, but in proof of this supposition I cannot cite any cases: it is, certain, however, that it often interferes materially with the education of the child. Such children are almost always dull in their studies, or timid or petulant in their manners and feelings. They are also liable to severe attacks of croup in early life, and later to more chronic bronchial affections.

Local or general therapeutic treatment.—Of this I have but little right to speak, since I have myself seldom resorted to any other means than extirpation; and I have not, because I have seldom heard of a cure clearly traceable to these measures, but especially because I have found the operation so simple, certain, and safe. If anything can be said in defence of therapeutic

* The Medical Examiner (American), No. XXXVII.

means, I would rather leave it to those who have themselves experienced their advantages.

Circumstances contra-indicating an operation.—The operation of excision ought not to be made when the glands are *inflamed*, unless the patient is threatened with suffocation, since the operation is then more difficult, more painful, and is more liable to be followed by fatal inflammation (I have seen the operation made upon a child, whose tonsils were at the time inflamed, terminate fatally in a few days from inflammation extending to the larynx), but especially because the danger from hemorrhage is then much greater. A friend of mine, a clergyman, applied to me to excise his tonsils, but I declined because they were inflamed. He went next day to New York city, and called immediately upon a famous tonsil-cutter, who shaved them off at once, and the wounds bled during three days. The bleeding was finally arrested by the hot iron, but not until life was almost extinct.

They ought not to be excised when no other reason can be assigned than that they are enlarged.

We should prefer not to make the operation where the patient has a hemorrhagic diathesis.

Circumstances which indicate an operation.—It ought to be made when, from their size, the patient is in danger of immediate suffocation, in whatever condition they may be. It ought to be made, having first removed all inflammation, when they produce deafness or impair speech, or occasion frequent attacks of tonsillitis, or occasional attacks of laryngitis, or endanger the development of chronic bronchitis, or of phthsis in persons already predisposed. Or it might be proper where, as in one case, which will be stated hereafter, the glands were affected with an obstinate neuralgic disease.

Age at which the operation can be made, and at which it is usually made.—Three of my operations were made upon children two years old, but at this age, owing to the smallness of the mouth, the operation is more difficult. I have made one upon a man aged forty-two, but the large majority have been made between the ages of four and ten years.

Mode of operation.—No one now questions the superiority of excision to the old, tedious, and terribly painful process of ligation. The last argument upon which the ligature was sustained—viz. that the knife was the most dangerous because of the hemorrhage which might follow—has long been given up; for we know that if some little danger does actually exist from the hemorrhage, it is much more than counterbalanced by the danger which attends the inflammation inevitably consequent upon the use of the ligature. I have never used the ligature myself, but I remember to have seen it used when I was an apprentice, and I can assure those who have never witnessed it, that it is one of the most barbarous operations in the surgical catalogue.

Results.—If no good reason can be assigned why the gland should *not* be removed more fairly than is generally recommended, a sufficient reason can be assigned why *it ought* to be. When the whole or two thirds of the gland is cut away, no more trouble is experienced from this source; but when one half or one third is removed, the balance does not generally disappear, and not unfrequently it again enlarges. This remark does not agree with the experience of some surgeons who have written upon this subject, and who, believing that if one half or one third is cut away the remainder will soon disappear, do not think it necessary to remove more than half at any time. But I have again and again seen cases in which the operation was thus imperfectly made, return to have them re-excised. Some of these have been my own cases, and in which I predicted at the time that the glands would

be very likely to trouble them again. In no case, however, in which two thirds have been removed, have the patients returned.

Neither the speech nor the hearing are improved until after the lapse of months after the operation is made. I have never known the speech to be *injured* by the operation; the apprehensions which some have felt upon this score do not seem to me to be well founded.

20. *Cleft Palate.*—A very able paper on this subject, with reference particularly to the new operation of staphyloraphy, by Professor Fergusson, is contained in the January number of the 'London Journal of Medicine.'*

The originality of this communication induces us to enter more fully into it, than our limits, under ordinary circumstances, enable us to do.

The views (says Mr. Fergusson) regarding this malformation, and the particular operation resorted to for its relief, are as yet, I believe, so little known to the profession, that I trust I may not be deemed presumptuous in again endeavouring to draw the attention of my brethren to subjects which, I am disposed to think, have had less consideration than they really deserve. In France, in Germany, and in America, many distinguished surgeons have written upon staphyloraphy, and numerous examples have been given of the success of the operation; but, strange to say, the proceeding has attracted little more than casual notice from the surgeons of Britain. Since Alcock first performed the operation in this country in 1821, it has been frequently repeated, but at dates so few and far between, that success, when achieved, has produced but little impression either upon the profession or the public. With few exceptions (among which I may refer to the brilliant examples occurring to Sir Philip Crampton†), the results of surgical interference have been so unsatisfactory, that teachers have done little more than describe the process which was followed by Roux, to whom the honour is due of having devised and first performed the operation. My own personal experience in early life in such cases had led me to conclude that an operation could only be successful in the most favorable instances, and it was not until I had made a careful anatomical examination of the parts, that I became convinced that more might be done by the surgeon than had yet been accomplished. At least it appeared to me that the operation might be put upon a more scientific basis, and that surgeons might be made aware of the nature and effects of the haphazard collateral incisions which had been proposed for the purpose of relaxing the soft palate during the period required for union in the mesial line. Roux's experience in the operation had been great, and his success was deemed very satisfactory—two thirds of the simple cases, and one third of those which were complicated, having derived benefit from the proceeding. My friends Dr. Mütter, of Philadelphia, and Dr. J. M. Warren, of Boston, had achieved much greater proportional success: for out of twenty-one operations, Dr. Mütter had succeeded in nineteen; and Dr. Warren had been equally successful in thirteen instances out of fourteen. Results like these might well content the most sanguine.

The anatomy of cleft palate.—The extreme mobility of the two portions of the soft velum in cleft palate had attracted the notice of all observers, but little, if any, attention had been directed to the moving powers. It was the custom in examining a case of the kind, for the purpose of determining upon an operation, to be guided by the facility with which the two portions of the uvula come together during deglutition. If a person with cleft palate be

* Observations on Cleft Palate, with cases illustrating the new operation of Staphyloraphy; by William Fergusson, F.R.S., &c. London Journ. of Medicine, No. 1, Jan. 1849.

† Dublin Journal of the Medical Sciences, July 1, 1843, vol. xxii.

desired to swallow a little water, slowly and with the mouth partially open, the back parts of the fissure may be seen to approach each other, and in most instances actually come into contact. If they seem to do so readily, the prospects in this respect are favorable for an operation, and *vice versâ*. The cause of this movement had never, I believe, been inquired into. So accurate an observer as Malgaigne* had been content to state, that it was "a muscular action of which it is difficult to give an explanation." The movement is clearly attributable to the superior constrictor of the pharynx, and the upper portion of the middle constrictor. The semicircle, which these muscles form on the back and sides of the pharynx, is, during deglutition, drawn into a straight line almost, the fibres come forward, inwards, and some of them downwards, so that the soft structures immediately in front—being the two portions of the split palate—are pushed in similar directions, and thus the posterior part of the fissure is made to close. The anatomist is more familiar with the action of pulling than that of pushing, as the result of muscular contractions. The lateral movements of the soft margins of the fissure could not escape observation, but, in so far as I know, they had never been accounted for. Doubtless any anatomist would have guessed that the levatores palati caused the elevation of these parts. He could not, however, have supposed that the palato-pharyngei could enlarge the fissure; on the contrary, in accordance with the doctrines of Dzondi and Müller (which are those usually entertained), he might suppose that these last-named muscles would in reality close the fissure; for their action, in the normal state of the parts, is to bring together the posterior pillars of the fauces. An examination of the course of the fibres of these muscles in the cleft state of the palate, will show beyond a doubt that one of their actions will be to pull the edges asunder: in this state of the parts, the anterior or upper extremity of each muscle is attached to the posterior margin of the osseous palate, and the fibres in their progress downwards, towards the sides of the pharynx, form a convexity upon the margins of the soft flap (in fact, it is this convex part which constitutes the most bulky portion of the flap): thus the action of each muscle tends towards the straight line, the parts are drawn asunder at such a time, and consequently the gap is enlarged. In the ordinary condition of the palate, these muscles have their fixed points above in the mesial line of the soft palate; and acting towards that line, they must necessarily close or cause the posterior pillars to approximate, in accordance with their supposed functions. Perhaps during deglutition in the cleft state, the upper margin of the superior constrictors forms, for the instant, a kind of fixed point, which permits the lower portions of the palato-pharyngei to act in the normal manner; but during the quiescent state of the constrictor muscles, the palato-pharyngei, when exerted to action, must tend to enlarge the fissure in the mesial line. The tensor (or circumflexus) palati seemed to me to possess so little muscularity, and besides to have such a limited sphere of action, that I deemed its influence upon the movements of the palate as of little consequence, and I entertained similar views with regard to both the palato-glossus and azygos uvulæ.

Principle of the operation of staphyloraphy.—In accordance with these anatomical and physiological data, I inferred that if the chief muscular action affecting the soft palate could be done away with—either for a short time or permanently—there would be a greater probability than ever of union taking place in the mesial line when the parts were united by the process of staphyloraphy, and on this principle the proceedings which I recommended were founded. As a preliminary step to the ordinary operation, I suggested the

* Médecine Opératoire, Paris, 1834, p. 486.

division of the levator palati on each side, and also, if it seemed needful, of the posterior pillars of the fauces, whereby large portions of the palato-pharyngei might be cut across. I also then thought that the anteror pillars, each containing the palato-glossus, might possibly require division. To effect these different incisions, I used a small, peculiarly-curved blade* for the levator muscle, and common curved scissors for the others.

In a large proportion of cases of cleft palate, the fissure implicates a portion of the bones as well as the soft velum. Such cases are never so favorable for an operation as when the soft parts alone are involved. When the bones are defective the soft margins are usually narrow, the gap being wide in proportion, and invariably the muscular movements of the flaps are more conspicuous than when the fissure is limited to the soft velum. In the natural state of the palate, the muscular movements are not so remarkable as in the abnormal condition. I do not think that even the levators or palato-pharyngei act with such energy as in the cleft state, and the greater the cleft, I am disposed to say, the greater is the muscular action. This does not depend upon increase of museular fibres, but rather arises from the comparative mobility of the parts. The smaller the fissure, then, the less conspicuous are the muscular actions—the nearer the normal state, the greater the resemblance in action to the ordinary muscular movements.

Steps of the operation.—When I first drew attention to the anatomy of the cleft palate, and pointed out the motor powers likely to prevent the success of the ordinary operation of staphyloraphy, I was chiefly anxious to point out how and where the muscles of the palate might be divided for the purpose of ensuring that state of quiescence which appeared so necessary to secure union in the mesial line. I wished to put the operation on that scientific basis which characterises the modern operations for club-foot, bent knee, strabismus, &c. Although fully satisfied of the correctness of my views, I have occasionally had difficulty in explaining why there should be movement in the flaps after the incisions requisite for the division of the muscles in question had been made. At first I was puzzled on this point, but I believe that I now understand the cause. At first I was puzzled on this point, but I believe that I now understand the cause. It generally happens, even after the supposed division of the levator muscles, that considerable jerking in the flaps may be observed, and such movements, I have no doubt, are produced by the palato-pharyngei. Supposing the two pillars of the pharynx divided, the portions of these muscles in front may yet vary in length according to their contraction or relaxation; and if their anterior extremities still remain in connexion with the posterior margin of the hard palate, the action may be sufficiently vigorous to give the impression, as the parts are looked at, that little good has resulted from the preliminary incisions. If, however, the parts be seized with the forceps, and pulled towards the mesial line, the comparatively feeble influence which the muscles now exert will be very striking. Besides averting muscular spasm, the incision which I recommend possesses another advantage, which I did not insist upon so much in my first paper as it seems to deserve. While the parts are stretched across the roof of the mouth after the insertion of the stitches, the wound above is made to gape, and in this condition is covered with a layer of lymph, which has the effect of thickening the tissues for the time, and also keeping them more quiet than they would otherwise be. I have such confidence in the accuracy of this view, that I prefer a free incision in the site of the levator palati rather than a short wound little broader than the blade; and I recommend the free incision, too, because many of the fibres of the palato-pharyngeus

* Practical Surgery, 2d edit., p. 531.

muscle will be cut, whereby further relaxation will be permitted. The incision may be effected either with a free division of the mucous membrane, or the knife may be plunged through this membrane, and then carried backwards and forwards to effect the division of the tissues within. I have sometimes acted on this latter plan, but in my opinion it is best to make the opening in the mucous membrane as free (or nearly so) as the wound in the muscular tissues. The blood gets readily away, and there is no infiltration of it in the soft tissues, as happens when the membrane is left almost entire. In general, I find that if the preliminary division above the palate be made free, and in an especial manner the anterior extremity of the palato-pharyngeus be separated partially, or perhaps completely, from the posterior border of the hard palate, there is little need for the division of the posterior pillar of the fauces. There is, perhaps, little or no risk in dividing this part, but after doing so, I have usually noticed that the two sides of the uvula became more œdematous than on other occasions, probably from defective circulation through the veins. In some instances, however, the division of that part of the palato-pharyngeus which forms the posterior pillar of the fauces, greatly facilitates the approximation of the sides of the posterior extremity of the fissure; and in all instances when, notwithstanding any incisions that may have already been made above each flap, the muscular action of the part seems still vigorous, I should deem the division of the parts in question of great service.

It has often appeared to me, that when the head was thrown far back for the purpose of exposing the palate to a strong light, the flaps have been drawn towards the posterior nares, and that in the same instances when the head was not kept so far back, the parts naturally came nearer the tongue. To account for these circumstances, I am disposed to think that when the head is thrown far back, the axis of the muscle is changed, and that its action, instead of being downwards, is probably upwards, just as the sterno-mastoid muscles are understood to incline the head forwards or backwards, according to the angle which the base of the skull forms with the top of the spine. Anywise I have not found it advantageous during the operation to stretch the head very far back.

In cutting so near to the numerous large vessels which are in this vicinity, some danger from hemorrhage might be apprehended. I have never yet, however, had the least trouble on this score. I have always used iced water in my operations, and the bleeding, which has never amounted to a tablespoonful, has invariably ceased before the termination of the operation. There might be imminent danger if the knife were carried far back above the palate, but so long as it is limited in its action between the posterior nares and the posterior border of the levator palati, there is no possibility of reaching any large vessel. Further back than this there might be a risk of the point passing out at the side of the upper part of the pharynx, and doing serious mischief.

I still retain the opinion that there is no better mode of introducing the stitches than by means of a slightly-curved needle, set in a handle.* The point of the instrument, armed with a smooth, round, waxed, silk thread, is passed from below upwards about a quarter of an inch from the cut margin of the fissure, and made to appear in the middle of the gap, when the thread is seized with forceps, drawn three or four inches out of the mouth, and then the needle is withdrawn. A similar manœuvre is followed on the opposite side; the two threads are then tied together by the ends which have thus been drawn out at the mouth, and, by withdrawing one of them, the other will be carried through the aperture opposite to that where it was first introduced.

* Practical Surgery, 2d edit., p. 33.

Hitherto the thread has been double; now one end must be drawn through the apertures and out at the mouth, and so the thread is ready to be tied. Two, three, four or five threads are introduced in this way, and then after the cut margins of the flaps are sponged free of blood and mucus, the various threads are fastened.

In my early operations I generally made a simple knot; or, by turning the thread twice over, made that called the "surgeon's," in accordance with the advice of Professor Smith, of Maryland. The object of the double turn is to prevent slipping until the completion of the knot. If there be no great muscular spasm, there is seldom any trouble from slipping; if there should be, the twist first made must be held firm with the point of the forceps, or else a favorable opportunity, whilst the parts are very quiet, must be taken to effect the manœuvre. But in preference to such plans, I have latterly adopted a method which I have found to be most satisfactory.* A loop is made with a single turn of one end of the thread,† the other end is then passed through it, when it is drawn so tight as just to permit the thread within it to slip along on the application of moderate traction. The loop can now be slid up to one of the apertures in the palate, and the cut edges being accurately adjusted, the whole can be kept *in situ* by tying a common knot on the thread close upon the loop. By taking care that the thread is very smooth on the surface, and regular in size, and by drawing the loop with proper firmness, slipping will rarely occur. But, indeed, it is one of the advantages attending my mode of operation, that there is less trouble at this part of the proceeding, than when the muscles are left entire in their natural condition.

The degree of tightness to which the stitches may be drawn, has often been a puzzling point with me. It has been remarked, that ulcerations frequently take place in the site of the ligatures; and this has been attributed to their tightness. I have no doubt that this is the cause; but if the pressure do not actually strangulate the parts, I believe that no permanent harm will result. If the edges of the fissure are not kept together with some degree of firmness, there is a risk of saliva, or mucus, getting between and preventing union. On the other hand, if all the threads were drawn so as to endanger strangulation, the whole extent of the margins between the threads might slough. On the whole, a moderate degree of tightness should be preferred, rather than that the edges should be kept asunder by saliva or mucus. I have, too, had difficulty in determining the time to remove the stitches. In some of my early operations they were all taken away about the forty-eighth or fiftieth hour, but latterly I have permitted them to remain longer. I believe that the adhesions are so readily broken on the second or third day, that it is best to permit all, or at any rate the most important ligatures, to remain over those dates, in case of any dangerous force being applied at this important period. It is better, in my opinion, to let the threads remain several days too long, than that they should be moved a minute too early. Usually I take one or two stitches away on the third or fourth day, and on the fifth or sixth remove them all. It is better, I think, to take them out at intervals, than all at once.

After-treatment.—With some exception, at first, all my patients have had fluid food from the date of the operation until the union has been firm. I believe this to be a great improvement in the treatment of such cases; and have to express my acknowledgments to my friend Sir Philip Crampton‡ for

* In the Gaz. des Hôpitaux, Oct. 1848, there is a communication by M. Gerdy on the subject of staphyloraphy, in which he recommends the employment of the quilled suture in place of the interrupted suture.

† Druitt's Vade Mecum, 4th edit., p. 401; also Medical Times, vol. xvi.

‡ Dublin Journal of Medical Science, July 1, 1843, vol. xxii.

breaking the established rule, previously acted upon, of starving the unhappy patients for eight-and-forty hours, or more, after the performance of the operation. Sir Philip permitted two of his patients to partake of "boiled bread and milk, custard, soup, and jelly, twice or thrice a day," with the best possible results; and when I contrast the apparent distress of the patients who were formerly starved, with the comparative comfort of those to whom this wholesome mode of enjoyment has been permitted, I have no hesitation in recommending this treatment as of very great service. Besides, the exhibition of soft or fluid food is less hazardous in my own method than in the ordinary operation, as the chances of spasm and consequent dragging in the stitches are greatly arrested. Well-made gruel is what I chiefly recommend, and it may be seasoned with salt, sugar, or a little wine, as the patient may choose. Usually, in eight or ten days the union of parts is so firm that solid food may be permitted, and it is seldom that any surgical interference is requisite after that time.

Patients and their friends are generally most anxious regarding the change of voice and improvement in articulation, as soon as speech is permitted. If the whole cleft has been closed by the operation, the improvement in tone is at once perceptible; but if there be any aperture left, as is often the case, little change can be perceived. If, however, the opening be closed by any piece of mechanism, the result as regards the voice will appear much the same as in the other instance. In some the change is much more apparent than in others; but in all, considerable after-training is required to improve the voice and speech. The original defect has permitted the air to pass as readily through the nostrils as by the mouth; hence the nasal sound so characteristic of such cases, and hence, too, the impossibility of articulating such sounds and words as get their modulation in the front part of the mouth in the natural state of the palate. I have found some of those on whom I have operated, so very indolent and regardless of improvement, that they have not taken any pains to learn the use of the parts as altered by the operation; but in others there has been such satisfactory progress as to astonish and delight the friends. One of my patients, whose articulation was so bad before the operation that I could scarcely understand a word he said, afterwards set himself industriously to study elocution, and in less than twelve months acquired such mastery, that his speech was in reality more correct than is usually heard in ordinary society. The power of speech is acquired so slowly and imperceptibly in early life, that we hardly appreciate the needful efforts; and under the circumstances referred to, we are all perhaps too sanguine as to the expected improvement,—forgetting, in our zeal, the many years that passed in early life ere an ordinary command was obtained over the organs of speech. In most instances I believe that considerable effort is required on the part of the patient to reap the full benefit of a successful operation.

I have attempted on several occasions to close the fissure in the hard palate, in accordance with the directions of my friend Dr. J. M. Warren,* but as yet without much success. The plan of dissecting the soft tissues from the bones, as recommended by this ingenious surgeon, seems in his hands to have been very successful. My own failures, must I suppose, be attributed to want of skill on my part, or to the circumstance, that the cases in which I have hitherto tried the practice have not been favorable for its application. Sometimes, whilst dealing with the soft palate, I have also dissected the tissues from the bone between the margins of the cap and the alveolar ridges, and so have been enabled to close the whole gap by bringing the parts together in the mesial line; but almost invariably the junction in front has given way in

* New England Quarterly Journal of Med. and Surg., April 1843.

a day or two after the stitches have been withdrawn, seemingly in consequence of the contraction induced by the soft structures resuming their original attachment to the bones.

In the February number of the same journal Mr. Fergusson details twenty-four cases, in which the practice recommended by him had been put into execution, and in twenty-one of which it had proved of advantage. Many of these were most unfavorable instances; and in three of the successful cases the ordinary operations had already failed.

21. *Harelip.*—In the 'Monthly Journal' for April 1849, we find the following excellent summary of the opinions recently advocated as to the proper period of operation for harelip:

Opinions as to the proper period of operating for harelip.—Dr. Mason Warren has recently published a paper, confirmatory of a recommendation he had formerly given, that infants should undergo this operation at as early an age as possible, he having frequently resorted to it twenty-four hours after birth, and with better success than in older children. This arises from the less resistance offered by the child, and the great rapidity of the healing process at that age enabling it to suckle almost as soon as if nothing abnormal had been present.

In *double harelip,* complicated with fissure of the bones and a projecting tubercle, he operates on one side first, and allows that to heal; for, if both sides be operated on at once, the tissues are too much stretched, and suppuration occurs. If one side has united, and a month be allowed to elapse before the second operation, the protuberant intermaxillary bone will be found to have become more or less drawn into its place. Sutures are very preferable to needles, however wide the separation may be; for they can be more easily introduced, cause less irritation, and can be removed in from forty-eight to seventy-two hours, without disturbing the tender adhesions. They allow the part to be inspected, and any excess of inflammation to be kept down by wet compresses; so that, after their removal, the line of adhesion is often free from redness, and, after a short time, is hardly perceptible. The suture needles are most conveniently passed when straight, and sometimes by seizing them firmly with the forceps.*

Dr. Anselm states, that a long experience has convinced him that the practice of immediate operation, put into force by M. Bonfils, of Nancy, is the best —the child then sleeping much, wanting little nourishment, possessing only an imperfect sensibility, and offering less resistance. The longer the operation is delayed, the less perfect is the adaptation attainable, for the two segments are never developed exactly alike. The imperfect sensibility of the child is so far from favoring, as stated, the occurrence of convulsions, that these are of far more frequent occurrence in older children. The child may easily be nourished for the first three or four days with a teaspoon, and after then it will suck with ease and safety. Much disappointment in this operation results from neglecting to divide the adhesions of the lip to the gum, without which exact coaptation cannot take place. After the operation, constant surveillance of the child by two attendants, during seventy-two hours, is requisite. Each of these, in turn, constantly maintains the parts in exact apposition, by gentle pressure of finger and thumb; for in this way alone can the consequences of the movements of the face be guarded against.†

M. Guersant observes that there are three periods at which this operation may be performed with different chances of success. The best chance is offered when it is performed within the first fifteen days. Later, we succeed less

* American Journal of the Medical Sciences, No. 30, pp. 337-8.

† L'Union Médicale, No. 76.

often, owing to the indocility of the child—its crying, eating, &c., preventing also accurate union. Later still, when the child has reached from ten to fifteen years, we may reason with him, and again operate with more success.*

In addition to the above, we may observe that M. Paul Dubois likewise, some time since, expressed a strong opinion in the Académie in favour of operating, in simple cases, upon very young infants. He uses very fine insect pins; and, as those usually found in the shops are too long, and bend before the tissues, thus increasing the pain and duration of the operation, they should be shortened before passing. After twenty-four hours the first threads are to be replaced by others, less tightly drawn, such change being repeated daily, and much diminishing the inconvenience produced by the pins. The upper pin may be removed after the seventy-second hour, and the lower one from the eightieth to the ninety-sixth, according to the solidity of the union, which should then be found complete. The children are suckled as usual after the operation, which M. Dubois regards as important for their welfare, and preventive of cries and struggles. He has never met with hemorrhage after the operation, and he believes the best security against this is the bringing the pared surfaces into accurate contact, and the avoiding making incisions into any other part than the lip itself. The detaching from the gum the portion of lip which is nearest to the upper angle of the wound, for the purpose of rendering approximation easier, is in his opinion unnecessary, as the naturally yielding character of the part allows of this being effected.†

Mr. Bransby Cooper says:—"For my own part I agree entirely with Sir Astley Cooper in regarding it as unsafe to operate upon infants before weaning—firstly, because, from their excessive irritability, they are totally unable to sustain any loss of blood; and secondly, because, after the operation, they are rendered incapable of sucking; and, indeed, Sir Astley has pointed out in his lectures the frequency of the failures he met with in his own practice in operating upon infants shortly after birth. I consider the best time, under ordinary circumstances, to be soon after the child is weaned, as it is then capable of receiving nourishment independently of its mother, and has overcome the distress incidental to the separation from her.

"At a more advanced age, as the development of the upper jaw increases in proportion to the growth of the teeth, the deformity is very much aggravated, particularly in cases of complex harelip. In addition to this, children of five or six years old can offer resistance during the operation, and are also less patient under the restrictions necessary during the progress of reparation.

"The twisted suture is, I think, preferable to the interrupted; but, from what I have seen of the practice of my colleague, Mr. Cock, I am led to consider the uninterrupted suture better than either."‡

22. *Foreign Bodies in the Œsophagus, Larynx, and Trachea—General Remarks on their Nature and Treatment.*—We have recorded two cases of foreign bodies, one in the œsophagus, the other in the trachea. In reference to such cases, Dr. Paterson§ observes—

Foreign bodies which enter the pharynx accidentally, or are intentionally introduced for suicidal purposes, are of very various sizes, nature, and characters, as regards their external surface and figure. The anatomy of the pharynx and gullet proves that no body from its size alone is likely to be impeded in the course of the œsophagus, if it only pass the inferior constrictor of the pharynx; the muscular contractions of the œsophagus being sufficient for pressing that body downwards into the stomach. But the shape of bodies thus introduced into the pharynx, and the circumstance of their being bounded

* Gazette des Hôpitaux, No. 75. † Brit. and For. Medico-Chirurg. Rev., Jan. 1849.
‡ Medical Gazette, June 23, 1848. § Edinb. Medical and Surgical Journal, Jan. 1849.

or not by sharp edges and angles, often exercise remarkable influence on their transition along the tube, or the position they may occupy; and if the edges and angles of those bodies are such that they interrupt its progress along the tube, very serious consequences may result from the body or bodies being thus impacted in the walls of the pharynx. We have on record some most remarkable cases of bodies of large size passing into the stomach. A number of clasped knives, some of them of large size, were in one instance swallowed at different times, and conveyed into the stomach; buckles, rings, coins of various sizes, small padlocks, and even a gold watch and seals, have either been accidentally or intentionally swallowed; and my friend, Dr. Jackson of London,* has recorded the history of a case, in which a female pressed the ring of a large key a certain length down the œsophagus for the purpose of committing suicide, and which had caused death by inducing inflammation of the œsophagus, the larynx, and trachea.

In all these instances the bodies possessed blunt or rounded edges and angles. When these angles are sharp, the body is detained in some part of the pharynx or œsophagus, causing laceration and ulceration of parts, and producing the most formidable change, by effecting false openings and new communications between contiguous organs. Dr. James Duncan describes, in the first number of the 'Northern Journal of Medicine,'† a remarkable instance, in which a thin gold plate, with sharp extremities, and to which were attached two artificial teeth, had been allowed to slip into the œsophagus, where it became fixed by the sharp angles of the metal, caused ulceration of the œsophageal textures, and gradually worked its way to the arch of the aorta, in which it had effected a perforation of the size of a large crow-quill, about half an inch below the origin of the left subclavian artery. This perforation was the cause of the death of the patient by hemorrhage.

There would seem to be great varieties in the size of the inferior pharyngeal opening in different individuals. Some persons can swallow bodies of considerable size; while in others a comparatively small body is arrested, and often requires to be removed by manual extraction. Thus, in adults, shilling and farthing pieces, buttons, &c., have been known to require to be extracted in this manner.

Those bodies, however, which have a rough-pointed or angular surface are by much the more dangerous from accidents of this kind. They are liable to be arrested in the folds of the pharynx, and, if they are not caught there, they are often detained in passing the inferior constrictor, or at some portion of the œsophagus. This arises obviously from the unequal surface, which does not slide over the mucous membrane like a smooth body, but is caught by it, and producing irritation, leads to further muscular contraction upon and consequent fixing of the foreign substance. Of this class we have references to various published cases, where fish-bones, an ear of rye, a portion of quill, &c., became fixed in the œsophagus and gave rise to serious symptoms, as in the case detailed.

Again, in reference to foreign bodies in the larynx, the following observations, appended by Dr. Ogier Ward to his case, which we have recorded (art. 32):

If the foreign body engaged in the larynx be of such size or figure as to allow its removal through the crico-thyroid space, laryngotomy may be preferable to the opening of the trachea, and presents, in such instances, the advantages arising from more direct access to the offending substance, less troublesome amount of hemorrhage, the absence of danger from the admission

* Edinburgh Medical and Surgical Journal, vol. lx, p. 195. † May 1844, p. 16.

of air into the veins, and probably greater facility of expelling the purulent and mucous secretions which almost invariably follow the operation. If the division of the membrane be effected by a crucial incision, sufficient space will be obtained in the adult for the extraction of most of the substances which find entrance to the organ; while, should the foreign body fall into the trachea or bronchus, it is likely to be removed by a slightly curved forceps of suitable length and slenderness of blades, with more readiness than when located in the larynx, it can be reached from the trachea. It appears to me, also, that were a case to present itself in which, from the situation, figure, or impaction of the substance in the uppermost part of the larynx, the division of the thyroid cartilage, strictly in the middle line, should seem materially to facilitate its removal, there does not exist any, *à priori*, consideration of an anatomical or physiological kind to forbid such an operation, at least in the young subject. The extraction of a body impacted in the larynx by the forceps introduced through the ordinary tracheal opening, is a matter of considerable difficulty, where, as is not unusual, the latter lies at some depth from the surface. If the practitioner should determine on resorting to the ordinary operation of tracheotomy, as he probably must in the adult (from the less yielding nature of the laryngeal textures), it will be indispensable to be provided with a forceps of considerably greater curvature than those usually employed, the last one and a half or two inches (which may be slightly bent), should form but little more than a right angle with the remainder of the blade, the points of junction of the two portions being well rounded off. In the young subject, should any difficulty be encountered in extracting a substance impacted in the larynx, the division of the cricoid cartilage, supplementary to the operation of tracheotomy, may be effected without risk, as is shown in the foregoing case. It appears to me also worthy of consideration, whether in the child, where the cartilages are yielding, a modification of laryngotomy might not be advantageously substituted in many instances, not only of foreign body in the larynx and trachea, but also into the free section of the crico-thyroid ligament. Such an opening would afford equally ready access to the trachea or the larynx, and by the separation of its edges (aided, if necessary, by the removal of a thin slice from the edges of the cricoid and tracheal part of the incision), sufficient room would be allowed for the extraction of most substances likely to be encountered in practice. If the incision strictly observe the median line, no danger of bleeding is encountered, except that from the laryngeal branch of the superior thyroid, which is easily arrested, the section of the isthmus of the thyroid body not affording any hemorrhage. There appears no reason, *à priori*, to doubt that any portion which might be removed from the cricoid would be replaced by new tissue, as in the instance of similar excision of a part of the tracheal rings. From the less depth of the parts from the surface, expectoration would probably be more easy, and the patient less teazed by the reflux of mucus into the trachea, which is a source of much discomfort and exhaustion after tracheotomy. If the operation just described were resorted to, it might be necessary to modify the figure of the canula, should the latter be required.

The uncertain issue of cases of foreign bodies entering the air-tube is strikingly illustrated by the result of the case detailed. The mass of mucus which appears to have caused death by obstructing the tracheal bifurcation was not part of the secretion of a general bronchitis, but merely a local collection produced by irritation of the lower part of the trachea and adjacent bronchi. As respiration was very shortly before death as tranquil as usual, it is probable that an inspiration following an unsuccessful effort at expectoration drew the viscid mucus mass so firmly into the opening of the bronchi as to prevent its subsequent expulsion.

23. *Summary of Cases in which unnatural Communications had taken place between the Œsophagus and Trachea or Air-Passages.*—In connexion with the subject of foreign bodies in the œsophagus, larynx, and trachea, we find, in the 'Edin. Med. and Surg. Journal' for January 1849, a most careful digest of a paper by Dr. Vigla,* entitled 'Recherches sur les Communications Accidentales de l'Œsophage avec les Poumons et les Bronches.'

M. Vigla arranges the cases collected by him into five orders or categories:

1st. The œsophagus perforated communicating with one or both lungs. Ten cases.

2d. The œsophagus perforated communicating with one of the pleuræ. Two cases.

3d. The œsophagus perforated communicating with the right bronchus. Three cases.

4th. The œsophagus perforated, or diseased, contiguous to a lesion of the lung or pleura, and in a state of imminently approaching communication. Four cases.

5th. A foreign body introduced into the œsophagus, paves for itself a passage outward by forming a fistulous opening through the chest. Four cases.

Our limits forbidding us to give even a summary of all these various cases (the majority of which are the consequence of disease of the œsophagus), we purpose in this notice to confine our attention to the fifth section, viz. *a foreign body introduced into the œsophagus, paves for itself a passage outwards by forming a fistulous opening through the chest*, as more particularly having reference to the subject at present under consideration, viz. the presence of foreign bodies in the œsophagus, larynx, and trachea.

Cases in which a foreign body introduced into the œsophagus has found its way outward by means of a fistulous passage through the chest.

1st. A robust young man, aged 22 years, serving in the campaign of Piedmont, received, on the 14th of April, 1686, a musket-ball between the tenth and eleventh thoracic vertebræ in the dorsal region. As no bleeding followed, the wound was enlarged by the bistoury; but neither blood nor ball escaped. He was desired by the surgeon to cough. Only some grains of rice which he had taken at his last meal came away. The wound healed up, and the patient recovered. He further acquired so much strength, though fed on bread and water in prison, that he made his escape in February 1687, with some companions, and fortunately reached Switzerland amidst severe cold, and through roads covered with snow. He then turned to country labour; but about the end of September, during vintage, after having carried for several days on his shoulders heavier loads than usual, he was attacked first with difficulty of breathing, then fever, thirst, restlessness, delirium, and pain in the head and chest. These symptoms proceeded, and became aggravated; and on the 10th of October the patient died.

The right lung adhered to the pleura, to the diaphragm, and to the mediastinum. Two fingers-breadth from its apex was found, in the substance of the lung, a leaden ball, inclosed in a proper sheath. The course of the ball could be followed from the site of the external wound to the cyst in the lung united together by adhesions; but it was impossible to recognise the vestiges of the lesion of the œsophagus. (Jacob Harder, Miscellanea Curiosa, Anno 1690; Obs. xciii, p. 158.)

Excepting for the rice-grains discharged at the wound, it might be doubted whether the œsophagus was wounded at all. The case appears to be more like one of those in which the ball was, from the first, lodged in the lung, without affecting the œsophagus.

* Archives Générales, 4me séries, t. xii, Oct. 1846.

2d. An ear of grass swallowed; pneumonia; abscess in the walls of the chest; escape of the ear of grass.—Some young persons were amusing themselves in trying whether, with an ear of grass placed on the tongue, they could pronounce certain words without swallowing the ear of grass. Two of these young persons placed the awns first, and the opposite end outwards, and when they tried to speak, they swallowed the ears, but suffered from this no inconvenience. A third, aged about 16 years, placed the ear in the opposite direction on his tongue, and scarcely had he pronounced the two or three words agreed on, than the ear slipped down the throat. The young man immediately was deprived of the power of speech, and breathed with such difficulty, that he appeared to be suffocated; and in this state he remained several minutes. All means were used by his companions to make him eject the foreign body, but all were unavailing. The fits of choking, however, were abated, though breathing was very much oppressed. Next day the patient was attacked by shivering, followed by fever, cough, spitting of blood, and all the symptoms of a formidable disease of the lungs. Active remedies were employed.

On the seventh day of the disease, a tumour the size of an egg appeared between the sixth and seventh true ribs, causing acute pain. Suppuration followed, and the abscess opened of itself on the thirteenth day, when, after the discharge of much fetid matter, the mother of the patient withdrew a body which turned out to be the ear of grass. The young man completely recovered.

Labath, who communicated this case to Hevin, was of opinion that the ear of grass had slipped into the windpipe. M. Vigla and Hevin think that it was in the œsophagus. It is not very easy to decide; but the history of similar cases inclines us rather to the opinion of Labath, that the ear of grass dropped into the larynx, and thence into the trachea and bronchus. It appears that the abscess was formed in the left side, three inches below the left nipple.

3d. An ear of grass swallowed by a child of six months; escape by an abscess in the back.—A child of six months swallowed an ear of grass with which he was amusing himself. The accident was followed by violent coughing, which, however, did not favour the descent of the body, because the awns were so disposed that they should have made it reascend. In the posterior part of the chest considerable inflammation took place, and terminated near the fifth rib in an abscess, in which the ear of grass was found.

4th. A girl of one year swallowed an ear of corn which she was holding in her mouth. Violent coughing immediately ensued. On the fifteenth day the patient discharged fetid pus by vomiting; and on the same day appeared a tumour on the right side near the superior ribs. The surgeon felt fluctuation. He opened the abscess and withdrew the ear of corn, which presented itself first, and then followed much matter. Air used to come through the opening. The child recovered perfectly in five weeks. (Ledelius, quoted by Hevin, p. 414.)

[It seems doubtful whether in either of the two last-mentioned cases, any more than in the first and second, the foreign body had really entered the œsophagus. The immediate symptoms following the accident lead rather to the conclusion, that these bodies had entered the larynx and descended to the *bronchi;* and the fact of air issuing from the interior of the abscess in the fourth case, though not conclusive against its proceeding from the œsophagus, yet favours as much the idea that the abscess communicated with the lungs.]

24. *Is Laryngotomy or Tracheotomy to be preferred in Acute Affections of the Larynx?*—This question is discussed by Mr. Prescott Hewett in the February number of the 'London Journal of Medicine.'

When, in acute affections of the larynx, the surgeon is called upon to

make an opening into some part of the air-passages, in order to relieve the urgent dyspnœa which has supervened, the operation in the trachea is the one selected by most surgeons of the present day. Now, the objéct of Mr. Hewett's communication is to prove, that not only is this preference not founded on just grounds, but also that it would be advisable in such cases to make the opening in the crico-thyroid region.

Acute affections of the larynx, terminating in effusion, present, it is well known, a very great difference in the adult and in the child; the effusion, in the former, taking place by far most frequently in the submucous tissue; whereas, in the latter, it is usually poured out on the free surface of the mucous membrane. In these cases, in the adult, the effusion is purely laryngeal; in the child, it is, most frequently, not only laryngeal, but also tracheal.

This marked difference in the localities of the effusion, at these two periods of life, at once points out two great divisions, in which the surgical treatment will necessarily be very different. My intention is to confine, for the present, these remarks to one of the divisions only, that of the adult period.

Effusions in the submucous tissue of the larynx, it matters not of what kind or how produced, are strictly limited to the parts above the rima glottidis. This fact, already pointed out by several pathologists, has not, I think, been sufficiently dwelt upon by practical surgeons.

That the effusion is thus invariably limited to this region, may be proved by morbid anatomy, by experiments, and by the anatomical structure of the parts.

The explanation of this limitation, he observes, is easily found in the anatomical structure of the larynx and trachea. Above the inferior vocal cords, the mucous membrane is connected to the subjacent parts by means of a loose cellular tissue, which is very abundant, especially in the region of the aryteno-epiglottic ligaments, whereas the connexions of the mucous membrane lining these cords and the trachea are very firm; the cellular tissue here, being very short and very dense, forms so firm a bond of union, that it is difficult to separate the mucous membrane from the parts lying below it.

The late Mr. Liston, who was a staunch advocate for the operation of tracheotomy in most affections of the larynx, where an operation was required, admitted, in some observations published in the 'Lancet' for 1844, "that the high operation in the crico-thyroid membrane, laryngotomy in fact, might answer in cases where there is obstruction in the rima glottidis, as where swelling has followed a scald of the glottis." The admission thus made by Mr. Liston for these cases of accident, ought to be applied to most cases of acute laryngeal affections in the adult. After childhood, it is, comparatively speaking, very rare to find the obstruction anywhere but at the rima, or immediately above this region; it matters not whether the effusion has been preceded by an accident or not, its locality is precisely the same in both instances; it is limited in the one, as well as in the other, to the parts above the rima.

Although the effusion be above the rima, in practice it will be found, in most instances, that the obstruction for which the surgeon is called upon to operate is at the rima itself. The sudden and urgent dyspnœa, coming on in paroxysms, at once shows that this obstruction is caused by spasms of the muscles in this region. This, too, is proved by post-mortem examinations; for in many cases where patients have died of sudden suffocation, the effusion has been so slight as to present little or no obstruction: certainly not sufficient to account for the symptoms. It is this spasmodic state which renders the operation of laryngotomy of so much value; coming on, as it does, so

suddenly and violently, it demands that the relief be immediate: the opening in the air-passages must, in many instances, to be of any avail, be made, as it were, instantaneously; tracheotomy, it is well known, cannot thus be performed with safety to the patient. A striking instance of this nature came under my notice some years back. A young woman, who was affected with extensive syphilitic ulceration of the throat, was suddenly one night attacked, no premonitory symptoms having been present, with most urgent dyspnœa. It was determined by the surgeon, who was close at hand, to perform tracheotomy; the operation was well done, but some little time was lost in making the opening in the windpipe, in consequence of some venous hemorrhage, and the patient, who made a slight rally after the introduction of the canula, soon died. At the post-mortem examination, the larynx was found to be quite healthy; the urgent dyspnœa had been caused solely by spasm of the glottis, induced by the irritation which was going on in its immediate neighbourhood.

In the preceding observations, reference has been made to laryngotomy in the adult only; but there is a class of cases occurring—and that not unfrequently among children—in which this operation is equally valuable. I refer to those cases where the little patients have swallowed either acids or, more commonly, boiling water. Here the limits of the disease are just as well defined: the effusion following the accident, being in the submucous cellular tissue, is strictly limited to the parts above the inferior chordæ vocales, and morbid anatomy shows precisely the same state of things as that which occurs most frequently in the adult: the urgent dyspnœa is in the same manner produced, in a great measure, by spasm of the glottis. In this class of cases, it may, I think, be said that laryngotomy is even more valuable than it is in the adult, owing to the much greater difficulty which naturally exists in laying open the windpipe of a child.

Having thus pointed out the exact nature of the disease in these affections of the larynx, if we now proceed to weigh the respective merits of the two operations which may be resorted to, we shall find that either of them will serve for the relief of the urgent and distressing symptoms which sometimes accompany these cases. On the one hand, however, we shall have an operation, laryngotomy, which may, in most instances, be performed with great ease, and, as it were, instantaneously; and, on the other, tracheotomy, an operation, the difficulties and dangers of which are such, that all experienced operators and practical writers have thought it advisable to dwell upon them strongly—so strongly, indeed, that it will be quite unnecessary for me to recapitulate them.

Such being the case, I shall close these observation with the two following general rules:

In adults, laryngotomy is, in cases of acute affections of the larynx, to be preferred to tracheotomy.

In children, laryngotomy is also to be preferred in cases where the obstruction has come on after swallowing boiling water, acids, or any other irritating fluid.

§ VI.—*Injuries and Diseases of the Abdomen.*

25. *Femoral Hernia.*—Mr. Gay has directed the attention of the profession, in a very able and elaborate work, to a mode of operating for femoral hernia, differing in principle and detail from the various methods which have heretofore been employed; a principle which "is capable of being applied to the relief not only of femoral, but to all outward forms of strangulated hernia.*

* On Femoral Rupture, its Anatomy, Pathology, and Surgery; with a New Mode of Operating, applicable to cases of Strangulated Hernia generally. With Plates, By John Gay, F.R.C.S., Surgeon to the Royal Free Hospital, &c. &c.

. . . . The principle of the new operation briefly consists in reaching the seat of stricture, when external to the sac, by a small incision, made through *healthy* structures, and in such a situation that the hernial mass shall not be injured or disturbed thereby."*

Mr. Gay's reasons for recommending a departure from the established system of operating are derived from the unquestionable fact of the high rate of mortality which has, according to all published reports, hitherto followed these operations.

Mr. Gay has occupied a considerable part of his work with an anatomical exposition of the parts concerned in femoral rupture, according to his own—and that a long series—dissections, interspersing it with notes of a more directly practical character, to which we shall principally allude.

Diagnosis.—For all cases of femoral hernia, Mr. Gay recommends the following as the best means of diagnosis. If a line be drawn across the front part of the thigh from the great trochanter to the spinous process of the pubis, and this line be divided into thirds, "the iliac third will lie over the neck of the thigh-bone and great trochanter; the middle third will horizontally bisect the head of the thigh-bone; whilst the horizontal ramus of the os pubis and the parts immediately concerned in the anatomy of femoral rupture will be subjacent to the outer part of its pubic division."

Seats of stricture.—In the case of an ordinarily strangulated femoral hernia, Mr. Gay mentions the following parts as the seats of stricture; it being possible that either one or several may be concerned in the constriction:

1st. *A peculiar band of fibres appertaining to the sheath of the vessels*, which is capable of constricting the sac in the situation of the femoral ring. This band is identical with that described by Hesselbach as "fibræ crassiores ligamenti inguinalis interni;" and is figured in the third plate of his work 'De Ortu et Progressu Herniarum,' 1816. It corresponds also with a band described by Langenbeck, and forms a part of that process of the fascia transversalis, which Mr. Key describes "as passing to the linea ileo-pectinea, and which, from its connexion with Gimbernat's ligament, has given rise to the erroneous idea of the latter consisting of *two* layers" (note, p. 27). The importance of recognising this band as a distinct seat of stricture is obvious from the fact that, in cases mentioned by Mr. Luke, as well as in others alluded to, the stricture was found in an unusual position, viz. "above Poupart's ligament;" and, according to Mr. Luke's description, was "produced by a transverse band of fascia crossing the entrance of the funnel-shaped canal into which the hernia descends in its passage from the abdomen" (note, pp. 47-8).

2dly. *The crural ring.* Mr. Gay says: "Being constituted of elastic membranes, unless their tissues are thickened, or are firmly adherent to the hernial tumour, *the ring* can only act mediately upon the hernia" (p. 48).

3dly, *The femoral or Hey's ligament and Gimbernat's ligament*, which surround and have the power to coerce the front and pubic side of *the ring*. These ligaments are the most constant seats of stricture external to the neck of the sac.†

The ligaments of Hey and Gimbernat are by Mr. Gay held to be distinct seats of stricture, so that the division of the one will in no way effect a relaxation of the other.

This is at variance with Sir A. Cooper's opinion, that the constricting force of the tissues at the femoral ring resides equally in every part of the ring or

* Preface.

† In the anatomical part of the work, Mr. Gay goes into a critical examination of the structure which has been usually known as Hey's ligament.

eirele which they co-operate in forming; and, in aecordance with the experienee of most surgeons, that oceasionally after a division of the stricture, so far as it resides in the ligament of Gimbernat, i. e. in the direetion of the pubis, it is neeessary before the hernial tumour can be restored, to divide Hey's ligament as well, i. e. to eut the strieture *forwards.*

The 4th seat of stricture is the margin of the lower orifice of the crural canal.

The 5th, the edge of the falciform process of the fascia lata.

In the varieties of femoral hernia in whieh the sae passes through the absorbent apertures of the septum crurale or of the eribriform faseia, the marginal edges of these apertures will of eourse be the seats of strieture.

In case of the first variety, the seat of strieture ean only be definitively aseertained after the parts which compose and surround the femoral ring have been freely dilated; when, if strangulation should eontinue, the surgeon would, before proeeeding to open the sae, direct his attention to the orifice in question, and seareh for an annular band of fibres, which would surround the sac just below its neck. The aperture of this fascia, through which protrusion has been observed to take plaee, is so small generally, that this kind of rupture might become strangulated before it beeomes *complete;* or, in other words, before it has passed through the femoral eanal. Hence, in these eases the *subjective* symptoms of hernia alone are more likely to present themselves than in other forms.

In ease of strangulation by the eribriform faseia, the seat of strieture would be evideneed by the proximity of the stricture to the femoral surface; and by the test to whieh Mr. Luke has ealled the attention of the profession, viz. to the point where impulse in the hernial tumour eeases to be felt upon eoughing.

Cause of death in strangulated femoral hernia.—We regret that our limits entirely prevent us from examining Mr. Gay's interesting speculations on this subjeet, as also his valuable researches into the pathologieal ehanges whieh in these cases precede death. We must therefore refer our readers to the work itself, which will be found well worthy of a eareful perusal.

Mr. Gay's operation.—The principle of the operation reeommended is "non-interference with the fasciæ and other parts of the mass not immediately involved in the detention of the herniated viscera . . . . The eutting and separation of fasciæ in operations for hernia have nothing to do with the *relief of the parts*—they are simply *guides* in the eourse of the operation, and as such ought to be abandoned. The operation can be performed, and that easily, by a fair anatomist, without such wholesale (as I have often seen them) *lamellar* separations, and would be thereby freed from mueh of the fatality which at present proeeeds from this process, and this proeess alone."*

Mr. Gay's plan of operation is as follows:

"For the first step of the operation two imaginary lines should be drawn *from the point directly over the* inner side of the neck of the hernial tumour; one to the tuberosity of the pubis; the other down the thigh along the inner side of the tumour. These two supposed lines will include an angular space in whieh, and about mid-distance from either, the *first incision* is to be made. This incision should commenee just within the angle formed by the meeting of these lines, and be carried inwards, and rather downwards, for the extent of an ineh or little more; and should divide the integuments and superfieial fascia over the femoral fossa.

"For the second part of the operation, the forefinger of the left hand (if the hernial tumour is on the right thigh, and *vice versâ*) is to be passed through

* Monthly Journal, March, 1849, p. 585.

this wound upwards and outwards along and close to the side of the hernial tumour to its neck. Should any of the deep laminæ of the superficial fascia which occupy the femoral fossa obstruct its passage, these must be divided.

"The blunt point of a bistoury caché, guided by the tip of the finger still in the wound, is to be passed through the cribriform fascia (one of the sheath-like apertures in which it will readily enter), and the delicate vaginal sheath which alone intervenes between it and the crural canal. It is now to be directed upward, through the *canal* to the *ring*, where it usually meets with resistance from the seat of stricture. By the least amount of force, and with the aid of a little gentle compression of the inner side of the tumour by the finger, the point of the bistoury may be insinuated between the *sac* and the pubic margin of the *ring:* the edge of the knife is then to be turned towards the pubis, and, by projecting the blade, the seat of stricture in that direction may be effectively divided.* Should the surgeon, however, be disposed to direct his incision forwards, it may be done either before or after the incision of Gimbernat's ligament with equal facility. It will be obvious from a reference to the anatomical relations of the parts, that in its course from the femoral fossa through the cribriform fascia, crural canal and ring, the knife will pass successively behind the falciform process, the edge of the lower orifice of the canal, Hey's ligament and the fibres of the inguinal ligament of Hesselbach; and thus be made to command whichever may happen to be the particular seat of stricture. By taking care not to keep the knife too close to the side of the hernial tumour, after its point has passed the cribriform fascia, its point would glide between the sheath and the deep layer of the iliac fascia lata; and in this way it would pass *between* the *ring* and the *last portion of Hey's* and *Gimbernat's ligaments*, and thus a division of these structures might be effected from the outside of the sheath or canal.

"If, after the division of the ring and parts on its pubic and front sides, the hernial tumour is not to be replaced without the employment of force, the stricture cannot have been dilated, and the surgeon would then have to contemplate the possibility of its being situated in the fibres of the septum crurale. The still constricted neck of the sac would in that case be felt, and it would be for the surgeon to get his knife cautiously behind the constricting fibres. This could be most easily done by such a knife as I am in the habit of using (made by Ferguson), which has a beak flattened in the direction transverse to the edge, by gently pressing the side of the tumour outwards immediately below the seat of constriction, so as to gain room for its introduction.

"Should the seat of stricture be in the margin of one of the apertures of the cribriform fascia, which would in all probability be discovered at an early period of the operation, the means for dilating it would be analogous to those which has just been detailed.

"If, after the division of these various textures external to the sac, the hernial tumour should still remain constricted, the external wound would have to be enlarged, and the seat of stricture looked for either in the neck of the sac or within the sac amongst its contents.

"The operation just detailed is most simple and easy of execution; requires but few, and those small incisions; leaves the hernial tumour, and its diseased coverings untouched; permits, if necessary, the immediate use of a truss; and,

* The objection urged against the division of the stricture towards the pubis, on account of the depth from the surface at which it has to be made, cannot apply to this, as it assuredly does to the usual method of operating; since the portion of the stricture selected lies immediately beneath the *undisturbed skin*, S. fascia and crural arch.

in an otherwise healthy subject, requires but a few days for the perfect recovery of the patient."

With regard to what has been called Petit's operation—viz. that of dividing the stricture outside the sac—Mr. Gay thinks it should be considered rather as the practical expression of a great principle; viz. that it is not desirable to divide more parts, or to carry your incisions deeper, than are absolutely required for the division of the seat of stricture.

The operation, as recommended by Mr. Gay, has been performed with success, as may be seen by a reference to the 'Lancet,' 'Medical Gazette,' and 'Medical Times.'

Nature of objections urged.—The objections which have been urged against its adoption have been chiefly those which have latterly been advanced against the practice of returning the contents of the hernial sac without an examination of their actual condition. It has been contended that on no occasion should the hernial parts be returned before such an examination has been instituted by the opening of the sac; but this doctrine would be equally fatal to the practice of attempting to return a rupture by the taxis; and would lead to the abandonment of this mode of restoring the parts in any case, for the risk of an operation—a mode of practice which few would concur in sanctioning.

In a paper on Mr. Gay's views, read by Mr. Hancock of the Charing-Cross Hospital before the members of the Westminster Medical Society, on the 19th of May,* this objection was urged, and it was alleged that there were no means at present known by which the operator could decide that the contents of a hernial sac were in a condition fit for their being returned as they are into the abdominal cavity.

Mr. Gay, in reply, said that the operator should not be biassed by a preference of the one or the other mode of relieving the stricture; but should be guided by the circumstances of the case, alleging that in general the previous history of the individual and the circumstances attendant upon and following the act of strangulation, would assist much in determining whether the sac should be opened for any purposes in connexion with its contents or not.

* Lancet, June, 2, 1849.

III.

REPORT ON THE PROGRESS OF MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

BY THE EDITOR.

The new works devoted to the subject of the present Report, which have been forwarded to us by their respective authors or publishers since the publication of our last Volume, are the following:

I. *Obstetrics, the Science and the Art.* By Charles Meigs, m.d. 8vo, Philadelphia.

II. *Parturition, and the Principles and Practice of Obstetrics.* By W. Tyler Smith, m.d. 12mo, London.

III. *A Practical Treatise on Inflammation of the Uterus and its Appendages, and on Ulceration and Induration of the Neck of the Uterus.* By James Henry Bennet, m.d. 8vo, London.

IV. *Practical Remarks on the Use of the Speculum in the Treatment of the Diseases of Females.* By Thomas Mitchell, m.d. 8vo, Dublin.

1. The work by Dr. Meigs is the reproduction, in a new and much enlarged form, of a volume formerly called the 'Philadelphia Practice of Midwifery.' It is addressed to the students of his class, and is therefore intended to be strictly elementary. The contents are arranged under four heads:

1st. The anatomy of the parts concerned in the acts of reproduction.

2d. The physiology of reproduction.

3d. The therapeutics and surgery of midwifery, or the obstetric art.

4th. The history and diseases of the newborn child.

In the description of the anatomy of the reproductive system, the author commences with the bones of the pelvis, and subsequently, in separate chapters, gives the mechanism of labour; the anatomy of the fœtal cranium, in relation to the outlets of the pelvis; and the anatomy of the soft parts. The anatomical descriptions are under each section interspersed with practical remarks on the pathology of the individual parts, many of which observations are of considerable importance and interest. The anatomy of the ovaries comprises the structural description and attributes of the ovum, together with a theory of production of the corpus luteum, which is peculiar to the author.

In the second part we have the physiology of reproduction, comprised in three chapters. The first giving the physiology of menstruation; the second, the causes and treatment of amenorrhœa; and the third, the subjects of conception and pregnancy, with the various questions appertaining thereunto.

Part third, which is devoted to practical midwifery, is divided into eleven chapters. In the first we have the definition of labour, the cause of its production, the various kinds of labour-pains, the different positions of the fœtus, and the mechanism of labour. In the second, the author describes the method of conducting labour, the management of the different presentations, delivery of the placenta, treatment of after-pains, &c. In this chapter also the author gives us his views respecting anæsthesia in midwifery; these we

shall allude to more in detail at a future page. The two succeeding chapters enter at length into the consideration of presentations of the face and of the pelvic extremities. In the chapter on preternatural labours, the author adopts a definition, more extended than is usual in works on midwifery, admitting not only the forms of labour usually so classed, but some others not generally admitted into the category,—as, for instance, labours accompanied by exhaustion; by the engagement of a loop of intestine in front of the womb; and by the existence of cancer of the womb, smallpox, &c. The next two chapters embrace the subjects of operative midwifery, as it may be termed, including turning; the description of the various forms of forceps, with the mode of using them; and craniotomy and embryulcio. A chapter is also allotted to the several subjects of premature labour, inversion of the womb, puerperal fever, atresia vaginæ, ergot, and milk-fever. Many of these are little else than repetitions of portions of the author's 'Letters on the Diseases of Females,' noticed in our last Volume.

The last part of Dr. Meig's volume treats of the management and some of the diseases of the newborn infant. It has no pretension to the title of a complete account of infant pathology, the observations being confined to a few of the more common affections, such as aphthæ, jaundice, and coryza. An entire chapter is devoted to the subject of cyanosis, to which we call attention, as particularly worthy of perusal.

The work concludes with the description of an instrument for the replacement of the retroverted womb, of which we shall give a more particular account hereafter.

In closing this hasty analysis of the present volume, we can conscientiously recommend it as giving, as far as it goes, a fair view of the present state of obstetrical science in America, of which the author is one of the most eminent professors.

It cannot be considered, nor does it, indeed, pretend to be a *complete system* of midwifery; for which reason we do not think that in this country it will be regarded as equal to the recent valuable works of Dr. Robert Lee and Dr. Rigby; it will nevertheless not fail to form a useful addition to the library of the practical obstetrician, as it abounds in precepts derived from actual bedside experience of no limited character.

2. The second book on our list, that by Dr. Tyler Smith, is a reprint in a collected form of the series of lectures lately published in the 'Lancet,' many of which have from time to time been reproduced in our former Volumes.

The main object and idea expressed in the work, is that of exhibiting the subserviency of the various phenomena of reproduction and parturition to that part of the nervous system called the true spinal; and this the author has accomplished, in our opinion, in a masterly manner. It is difficult to point out any portion of the author's labours which are not interesting from their novelty, as well as from the philosophical manner in which the subject is treated; but we would refer the reader to Lectures 14, 15, 20 and 25, as especially valuable. Although differing from the author on some points, that for instance on the uterine origin of the movements, generally and as we believe, correctly attributed to the fœtus; we do not fear to say that midwifery is under great obligations to him, not only as having rendered the subject more generally attractive by his method of handling it, but for contributing greatly to fix the obstetrical art more securely on the basis of scientific principles.

3. We have equally the pleasure of being able to speak in terms of high commendation of the next book on our list, by Dr. Bennet. When, a few years back, the first edition of the present work was published, the subject

was one which was almost entirely unknown even to the obstetrical celebrities of the day; and even now we have reason to know that the bulk of the profession are not fully alive to the importance and frequency of the disease of which it takes cognizance. The present edition is so much enlarged, altered, and improved, that it can scarcely be considered as the same work. The history and treatment of ulceration of the os and cervix has been greatly extended; the author having studied it not only, as in the former edition, in the case of the married female, but in the virgin, in the pregnant female, and in the female in advanced life. He has also added chapters on inflammation of the body of the uterus and of the appendages, both in the puerperal and non-puerperal states; on the connexion of inflammation of the neck of the uterus with the displacements and functional derangements of the organ; on syphilitic ulceration of the os uteri, and on diagnosis of uterine cancer.

Abstracts of several of these chapters have already appeared in our former Volumes (IV, 172; V, 163; VI, 148; VIII, 183), and need not therefore be further noticed in the present Report. Such portions as have not been mentioned will be commented upon under the respective sections to which they may with propriety be referred.

Dr. Bennet's volume is another proof that in medicine, as in everything else, for whatever of real progress is made, we are, nine times out of ten, indebted to, comparatively speaking, young men. Dr. Bennet has not yet, we believe, reached the meridian of life, but we question whether there is any senior in his own department, that must not own, if he has candour enough to do so, that the volume before us contains a mass of information to which, with all his "experience," he was previously a stranger.

4. The 'Practical Remarks on the Speculum,' by Dr. Mitchell, is a small treatise written for the use of his pupils, and made up of the clinical lectures delivered by him at various times. It is therefore, as might be expected, a strictly elementary work, intended only for the student or practitioner who is practically unacquainted with the diseases in which the speculum is of so much value. There are, however, one or two points touched upon, which may be unknown to those who have turned their attention to uterine pathology, such as the use of the solution of gun-cotton to ulcers of the os and cervix, and a method of applying the Vienna paste and uterine injections. The latter is noticed by us in a former Volume.

Of the coloured plates which accompany this little work we cannot say anything in praise. They are executed in a very inferior style, and are totally unlike what they are intended to represent.

§ I.—*Anæsthesia in Midwifery.*

The interest excited by this subject, though somewhat abated, has not subsided entirely, but is still kept publicly alive by the occasional appearance of a pamphlet or book, taking, as the case may be, a favorable or unfavorable view of its applicability. Of this nature are two productions which we have now to notice; namely, a treatise by Dr. Channing, and a pamphlet by Mr. Gream.

Dr. Channing, of Boston, an accoucheur in extensive practice, records the results of the inhalation of ether in upwards of 500 cases, these results being altogether favorable. "Anæsthesia has," he observes, "produced no such effects in midwifery as for a moment should suggest that it be laid aside, or which makes its entire safety a question. I have not met with a case, either in personal experience or on record, in which anything untoward has occurred

during etherization in midwifery, which could not be explained without reference to that agent."

The author's views are succinctly exhibited in the following propositions:

1st. I generally take the ether or chloroform with me, and if the pains are severe, I offer inhalation as a sure and safe means of abolishing pain, and this in a perfectly natural labour.

2d. In protracted labours, in which dilatation goes on slowly, notwithstanding severe contractions and great suffering, I recommend and employ inhalation.

3d. In any labour, if there be imperfect dilatation, or the secretions are deficient, I use inhalation.

4th. In instrumental labour I use inhalation, *always applying the instruments before inhalation is commenced.*

5th. In turning I employ inhalation.

The objections to anæsthesia, which apppear to be much the same in America as in England, are met by Dr. Channing in much the same manner as has been adopted by its advocates here; but as we have entered fully into these points in former Volumes, a repetition would be out of place.

In a subsequent part of his essay the author gives the results of anæsthetic midwifery in America, as derived from personal experience, and from the experience of numerous physicians, who replied to a circular letter making inquiries on the subject. These results are of sufficient import to warrant their detail.

In 516 cases of cephalic presentations, in which anæsthesia was induced, the mother did well in all.

In 51 cases of instrumental, preternatural, and complex labours, the maternal deaths were four,—a mortality, as Dr. Channing remarks, so small as was never before presented. These cases included forceps and craniotomy cases, arm and breech presentations, cases of unavoidable hemorrhage, and of convulsions, among which were the four fatal cases.

— Mr. Gream, the author of the pamphlet entitled 'The Misapplication of Anæsthesia in Childbirth,' is known doubtless to most of our readers as one of the earliest and most uncompromising of the opponents to anæsthesia in obstetrical practice. His opposition is, however, we must observe, of that violent character, which deducts largely from the credence which we might otherwise attach to his writings. There is, in fact, so great an air of partizanship, and of an almost morbid hostility to Dr. Simpson, and the other advocates of the other side of the question, that the mind instinctively prepares itself to receive his remarks *cum grano salis.*

The author starts by assuming that the requiem of anæsthesia in midwifery is already sung, as far as the public is concerned—a fact, by the by, the existence of which we beg leave to doubt; and he then proceeds to inform us that he has collected information by means of a circular letter, the answers to which are such, that not only have all his former assertions been substantiated, but his prognostications of injury to a frightful extent exceeded. With this introduction he commences his opposition by the enunciation of certain allegations:—to wit, that anæsthesia from ether and chloroform is no more or less than drunkenness; that it gives rise to indecent dreams, expressions and actions; that it induces convulsions; and lastly, that it may cause death. Each of these he endeavours to substantiate by facts, most of which are derived from the sources above mentioned.

Want of space prevents our following the author through the details thus accumulated; but we cannot avoid the remark, that some of the facts by

which he supports the second proposition are such as we are surprised to meet with in a pamphlet, which, whatever may be the author's intentions, will doubtless find its way into some of the "drawing-rooms," whither he accuses Dr. Simpson's writings to have preceded him. If such be the case, we submit that pages 33, 34 contain notices scarcely suitable for the perusal of modest maidens and matrons.

That with this possible contingency such indecent details should have been printed is the more to be wondered at, that Mr. Gream prides himself not a little on his delicacy, refusing on that score even to avail himself of the use of the speculum. We would not be understood to find fault with Mr. Gream for his opposition to chloroform in midwifery; although entertaining a favorable opinion respecting it ourselves, we willingly acknowledge the paramount importance of caution in its employment, and would deprecate the resorting to it in cases not absolutely requiring it. With these views we think some good may arise out of Mr. Gream's pamphlet, by its keeping within due bounds those whose opinions might, without reading both sides of the question, be a little too enthusiastic in the favour of obstetric anæsthesia.

— In the volume above referred to Dr. Meigs also records his objections to anæsthesia in midwifery, which are in the main the same as are generally urged, viz. that a certain amount of pain is necessary and beneficial, and that etherization is only another term for intoxication. For the refutation of these objections the reader is referred to our former Volumes.

§ II.—*Diseases of Women unconnected with Pregnancy.*

1. *Urethritis in the Female.*—Dr.M'Clintock has recently narrated two cases of urethritis in females. One of these was a lady in the fourth month of her twelfth pregnancy, who had been suffering from this affection of the urethra for two months, and had tried a variety of means for its removal, prior to his seeing her. The other patient was a poor countrywoman, who had given birth to five children, three of whom were removed by craniotomy, in consequence of a large osteo-sarcomatous tumour within the pelvis. The symptoms in both cases were nearly identical, and were as follows:—Intense burning pain during each act of micturition, accompanied with much straining and bearing-down. There was no discharge from the vagina, nor any evidence of disease of this canal or of the uterus. The urine of each, examined in the ordinary way, seemed healthy and free from albumen. Looking at the meatus urinarius, the mucous membrane of the canal was seen to be in a highly vascular and swollen condition, so as to form a considerable tumour at the orifice. This when touched was exquisitely sensitive. Having satisfied himself as to the pathological state of the parts, he commenced the treatment. In the first case, he began by trying astringent local applications, such as alum, zinc, and lead washes; and these failing to produce any beneficial effect, anodyne lotions of various kinds were next used, but with no better result; lastly, he applied directly to the part a strong solution of lunar caustic, but neither did this bring about any improvement in her condition. It then occurred to him to make trial of copaiba, which exercises a very marked influence upon the mucous membranes generally. He accordingly commenced with three capsules of the balsam in the day, and increased the number to four per diem. This treatment at once produced the most decided improvement; so that after she had taken eighteen capsules she was entirely freed from her torturing complaint.

In the second case the complaint was of six weeks' standing, and, without

waiting to try the effects of any other remedies, he at once commenced the use of copaiba capsules in the manner just described, and with a like satisfactory result, as a perfect cure was established before she had finished the contents of the box. A subsequent examination of the urethra, showed that it had reacquired its natural healthy characters. In commenting upon these cases, Dr. M'Clintock very clearly pointed out how they differed in their symptoms and pathological nature, from gonorrhœa, from vascular tumour of the meatus urinarius, and from thickening of the cellular tissue surrounding the urethra,—a disease first described by Sir C. M. Clarke. Lastly, he alluded to Dr. Ashwell's chapter on "Chronic Urethritis," in the last edition of his treatise on Female Complaints, which is the first work containing a description of it. The extremely incontrollable nature of the disease described by Dr. Ashwell, which almost set any treatment at defiance, inclined Dr. M'Clintock to entertain suspicions as to whether the cases he met with could have been of the same nature as his; and yet that they really were instances of inflammation of the urethra he established beyond any manner of doubt. In order to reconcile these conflicting results, he could only suppose that his cases were of a milder character.*

2. *Inflammation of the Os and Cervix Uteri—in its connexion with Functional Derangement and Displacement of the Uterus.*—This is the title of chapter xii in Dr. Bennet's volume above alluded to, in which the author shows that many of the female ailments usually treated as separate diseases are in reality consequences of this morbid condition of the os and cervix uteri.

Leucorrhœa, when persistent, and mixed with pus or thick tenacious mucus, is, the author believes, always associated with inflammation and ulceration of the os and cervix. The connexion between the latter and *amennorrhœa* is not so obvious, but the sudden suspension of the discharge may in some cases be the exciting cause of uterine engorgement and inflammation.

Dysmenorrhœa is more frequently the result of inflammatory disease of the womb than of mere functional derangement. It may also, Dr. Bennet observes, depend on narrowing of the cervical canal, but the two forms are, he thinks, easily recognised. Speaking of the latter form of painful menstruation, he informs us that there is naturally a kind of sphincter at the upper part of the cervical cavity, so that a difficulty in passing a bougie into the uterus is not *prima facie* evidence of morbid contraction. On the contrary, he considers that a free communication between the uterine and cervical cavities allowing of the free passage of the sound is generally a sign of disease, excepting immediately after menstruation, or for some time after parturition.

Menorrhagia and uterine hemorrhage in the unimpregnated state are also, in the author's opinion, generally due to chronic inflammation and ulceration of the cervix. This condition is also, as was previously stated by Mr. Whitehead, the explanation of the cases of reputed menstruation during pregnancy.

Chronic inflammation of the neck and body of the uterus is a frequent unsuspected cause of *sterility*. This is not be wondered at, when it is considered that inflammatory engorgement may not only render the uterine canal impervious, but that, in addition to this, a viscid mucus is secreted, which entangles the spermatozoa, and prevents their access to the uterine cavity.

Abortion may both be caused and be itself the cause of inflammatory ulceration; in the former case it is produced in various ways. The vitality of the womb may be so modified by the disease, that the germ perishes in its earliest phases, or it may ensue at a later period, from the incapability of the inflamed organ to bear the distension of the fœtal development. At a still later date

* Reported in the Medical Times, March 10.

of gestation, the presence of ulceration may induce premature confinement, by exciting morbid reflex action.

The displacements, which the author refers to as produced by inflammatory ulceration, are prolapsus, *ante-* and *retroversion* and *retroflexion.* These conditions he shows to be dependent, in a large majority of cases, upon the increased size and weight induced by long-standing inflammation ; and, moreover, he affirms that the symptoms which are referred to the altered position are in reality due to the inflammation and ulceration. He is not disposed to lay the same stress upon the displacement (alluding more particularly to retroversion and retroflexion) of the womb, as is done by many recent writers, and, like Dr. Oldham, he considers the best treatment to be that which is directed to the reduction of the inflammatory engorgement and ulceration, and omitting all instrumental attempts at reposition as unnecessary.

3. *Inflammation of the Os and Cervix Uteri—Treatment.*—Dr. Bennet's experience, subsequent to the publication of the first edition of the present work, has tended in the main to confirm him in the views he then adopted.

He divides the treatment into two sections—1st, that of inflammation without, and, 2dly, of inflammation with ulceration and hypertrophy.

The treatment of the first variety is considered under the several heads of vaginal injections, local depletion, and cauterization.

Vaginal injections are either simple or medicated ; of the latter, Dr. Bennet prefers as an emollient the decoction of poppy-heads ; as astringents, either alum, acetate of lead, sulphate of zinc, nitrate of silver, and laudanum. In public practice he generally uses alum. These injections alone will often cure an inflamed cervix previous to the establishment of ulceration, and even then if the ulcer be recent and superficial. The author gives directions both as to the instruments most serviceable and the precautions necessary for the use of vaginal injections, which it is important to bear in mind. A vaginal injecting apparatus, of great simplicity and usefulness, has been devised by Dr. Jones, and will be described at a future page.

Local depletion is accomplished by leeches or scarification. Although the cure is much expedited by these means, Dr. Bennet does not think them indispensable. He finds that his public patients, in whose cases he cannot carry out the application of leeches, do almost as well as others in whom local bleeding is used. He cautions the reader against too great freedom in local bloodletting, as, if the general strength of the patient is reduced by it, more harm than good accrues. He has also noticed the fact that the application of leeches once or twice a week for a lengthened period will often keep up the congestion, by deriving blood to the uterus. That they are capable of doing this we have ample evidence in the fact that the menstrual flux may often be determined in this very manner.

The only caustic necessary in inflammation without ulceration is the nitrate of silver, which acts in this case rather as an astringent than as an escharotic.

When ulceration and engorgement have ensued, some modification of the above treatment is necessary, chiefly in the mode of employing cauterization, and in the agents employed. The nitrate of silver is the one most commonly used, and suffices in the less obstinate forms of ulcer. For others, Dr. Bennet uses more potent escharotics, as the acid nitrate of mercury, potassa c. calce, &c. In the mode of using those which require great care and caution, we must refer to Dr. Bennet's pages.

Dr. Bennet speaks in commendation of the actual cautery, so much employed, and with so much success, by Jobert de Lamballe. The pain is trifling, and the reaction less than is seen after the use of less energetic measures.

In his remarks on the treatment of the hypertrophy, Dr. Bennet expresses his want of confidence in the local and general use of iodine, trusting to local depletion, and where this fails, to the modifying action of deep cauterization by potassa c. calce.

4. *New Method of applying Vienna Paste.*—Dr. Mitchell advises that this active caustic be inserted into a shallow circular disc, attached to a stem, and used with the aid of a speculum.

5. *Corroding Ulcer of the Uterus.*—Dr. Ballard has contributed a supposed case of this disease, for the purpose of inquiring into its nature, whether cancerous or not. The question is one which has not been satisfactorily determined, even by the most recent writers, though the majority look upon it as a specific ulceration, distinct from cancer. Dr. Ballard's case appears to be a doubtful specimen of the disease, inasmuch as there was some indurated deposit, exhibiting cells, "like cancer-cells." The distinctive character of this form of ulcer, which is allied to lupus, probably, rather than cancer, is, according to Dr. Ashwell, the absence of indurated deposit, the uterine tissue being normal, almost to the very confines of the ulcer.*

6. *The Actual Cautery in Uterine Affections.*—M. Jobert has for many years been in the habit of treating severe uterine hemorrhage (in the unimpregnated state we presume) by the actual cautery to the cervix. There are at this time in his wards six women, who were exsanguine, and, as it were, dying, when the hemorrhage was arrested by a single cauterization, and they have now regained their flesh and colour. Of these, some were the subjects of ulcerated carcinoma; others laboured under hypertrophy of the cervix, with granular ulceration. A third variety, treated by M. Jobert in his private practice, comprises those known as purpuric hemorrhages.

The cautery which he uses is of a globular form, and is applied with the aid of a large ivory speculum, over the whole bleeding surface, and is held in contact sufficiently long to cause a deep eschar. The patient experiences no pain, and the vagina is immediately washed out with cold water. From this time the hemorrhage generally ceases for some days, but as the eschar becomes detached, leucorrhœa, and finally hemorrhage, reappears. The cautery is then applied a second time, and produces the same effect. By this the hemorrhagic tendency is further checked, and the fetidity of the discharges much lessened. A third and future cauterization, if necessary, becomes so at longer intervals. In the mean time the patient recovers her strength, and may take iron and quinine. The cancer is by the above means checked, but not cured, and if left to itself, the same symptoms would reappear, but it has been observed in many cases, that if the patients are occasionally examined, and fungous granulations checked by the cautery, life may be indefinitely prolonged. When the hemorrhage depends upon simple hypertrophy with ulceration, a perfect cure is effected in two or three months.†

7. *Uterine Douche.*—As an auxiliary means of treatment in uterine affections, it is right to mention a contrivance made public by Dr. Jones, for the more effectual administration of vaginal douches and injections. It consists of a certain length of gutta-percha tubing, divided into two unequal portions. One of these, about two feet long, is fitted with a vaginal tube at one end and a joint at the other, adapted for the insertion of the lower end of the longer portion. This other portion may be of any length, but four or five feet is sufficient. One end is fitted to the joint first mentioned, the other is inserted

* Provincial Medical and Surgical Journal, April 4, 1849.

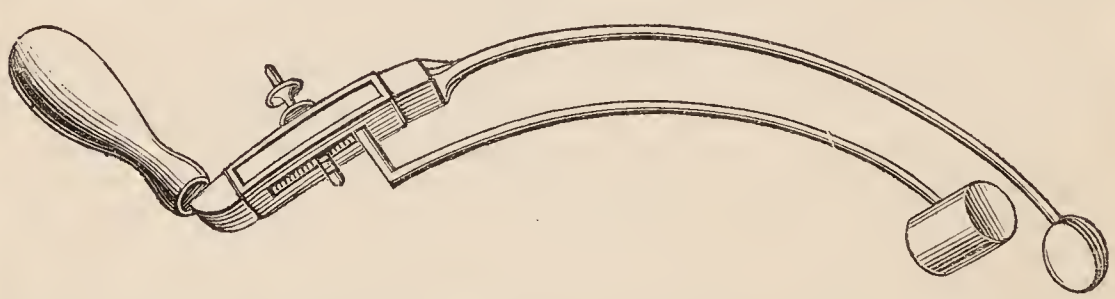
† Annales de Thérapeutique, and Prov. Journ., Jan. 24.

in any vessel containing the fluid to be injected, and placed at a height above the patient corresponding to the length of the tube. When used, the vessel is placed on a shelf or other convenient position, and the patient, sitting over a bidet, inserts the vaginal tube, and exhausts the air from the lower end of the longer portion; she then quickly fits it into the corresponding part of the shorter tube, when a continuous stream is immediately directed upon the os uteri, as long as any fluid remains in the reservoir. A further recommendation of this instrument is its cheapness.

8. *Uterine Polypus.*—An Italian surgeon, M. Comi, has introduced a modification in the operation of excision of polypoid growths, which consists in the use of an instrument resembling the midwifery forceps, instead of hooks, as a means of depressing the tumour. He is an advocate for excision in preference to ligatures in all cases.*

9. *Retroversion.*—Dr. Bennet, as we have stated, looks upon inflammatory engorgement as the chief cause of the displacement in the unimpregnated womb. At a further page (Op. cit. p. 438), he objects to mechanical contrivances for repositing the organ, believing that the symptoms solely dependent on the displacement have been much exaggerated. He states that he is aware of many patients who are unconscious of the existence of a retroverted uterus, and consider themselves well after the subsidence of the inflammatory condition of the organ for which they were under his treatment.

—In Dr. Meigs's work (Op. cit. p. 660), there is a description of an instrument, designed by Dr. Bond, of Boston, U.S., for the purpose of restoring the womb to its place in cases of retroversion. The instrument, of which the accompanying figure is half the size, consists of two arcs of circles of different



radii. Of these the inner terminates in an oval piece of ivory, the outer in a circular one. The outer arc is formed at its other end into a plate-piece, in which is a mortice. To the end of the plate-piece is attached a handle. The inner arc is inserted into a sliding piece, also morticed, and overlapping by its edges the morticed plate-piece, and secured by a clamp traversing the mortices, and fastened or loosened by turning the thumb-piece. If the thumb-piece be unscrewed, the arcs are easily separated.

In order to use the instrument, the arcs are first to be separated, and the ivory ball on the largest introduced into the rectum, while the oval one is passed into the vagina. The two balls being made to reach the fundus uteri, the arcs are fixed by the clamp; and an instrument is thus formed which can be moved upwards parallel with the sacral curve, and thus carry the uterus before it. A case is given in which it succeeded admirably.†

— An account of the instrument, with an engraving by the inventor, appears in the 'American Journal of the Medical Sciences' for April.

10. *Climacteric Disease in Women.*—Subsequently to the publication of the paper by Mr. Corfe on this subject, which is to be found among the extracts

* Annali Universali, Juin 1848. † Meigs, op. cit. p. 669.

in the present Volume (art. 71), Dr. Tyler Smith has, in a letter to the 'Medical Times' of April 21, vindicated his own claims to a prior description of the disease, which he has given as an appendix to his volume above mentioned. This author alludes to it under the title of a "peculiar malady incidental to the decline of the catamenia." "There is," he observes, "a peculiar malady which has never been described, belonging to the period of the change of life, and allied in its nature to sphagiasmus. The so-called "heats and chills" of this period consist of a real paroxysmal affection, allied both to intermittent fever and epilepsy, particularly to the cerebral variety of the latter; sometimes it terminates in epilepsy, or mania, or even apoplexy. In fact, the malady is a fruitful source of mania, occurring in the female after the decline of the catamenia. The disorder I refer to appears to consist of compression of the veins of the neck, and distension of the cerebral circulation, attended by vivid sensations of heat, flushing, and giddiness. These symptoms are soon followed by relaxation of the neck, coldness, and faintness, with perspiration over the whole surface of the body. The paroxysms occur many times in the twenty-four hours."

11. *Ovarian Diseases.*—The first article in our midwifery extracts contains a portion of a series of essays by Dr. Tilt on the various forms of ovaritis, which exhibit a more than usual acquaintance with the pathology of those important organs the ovaries. The remaining part of the essay will appear in our next Volume.

12. *Ovarian Tumour, Spontaneous Evacuation of, by the Bladder.*—The following interesting case occurred in the practice of Dr. Hughes Bennett:

A female, æt. 25, was admitted into the clinical wards of the Edinburgh Royal Infirmary, in November 1848. She had been delivered a fortnight previously. The abdomen remained large, and, when examined, the size was that of six months' pregnancy. The tumour was irregular and nodulated; no fluctuation could be detected. Her general health was good. She remained much in the same state for four days, when Dr. Bennett's attention was directed to the urine, which presented a copious white deposit with a supernatant liquor of an amber colour. The deposit was found to consist of pus, mingled with compound granular cells. The clear portion was coagulable. A large quantity of this matter was discharged for several days, and, at the same time, the tumour was observed to have diminished. A flannel roller and pressure was then resorted to, and the diminution gradually became more marked, until at length the tumour was not perceptible to the eye, and the urine again became of a natural character.*

13. *Ovarian Cyst ruptured by a Blow.*—An instance of this accident terminating fatally by peritonitis is reported by Mr. Herapath, of Bristol. Eleven weeks appear to have elapsed between the rupture, which arose in consequence of a fall on the abdomen, and the death of the patient. After death the rupture was discovered, and the abdominal contents were closely matted together by inflammatory deposit. The contents of the sac consisted of sero-purulent fluid, masses of fat, and hairs. On examination, the latter had all the characters of adult hair.†

14. *Ovariotomy.*—Three cases of this operation have to be noticed in the present Report: two successful, by M. Vaugirard and Dr. Miller; the other fatal, by Dr. Branson.

— M. Vaugirard's case is the first instance of the operation in France. It was performed on a female, æt. 25, who had enjoyed good health until the

* Edin. Monthly Journal, Feb. 1849. † Edin. Med.-Chirurg. Review, Jan. 1, 1849.

year 1842, when the commencement of the disease occurred. The first tapping took place in 1844, and from that period until the date of the operation, October 15th, 1847, she was tapped fifty-one times. The operation is thus described:

Insensibility having been produced by ether, an incision three inches in length was made to the left of, and parallel with, the linea alba; six or eight pints of fluids were allowed to escape, and the length of the incision was then increased to seven inches. The tumour, which was dark coloured, then presented itself, and was punctured, and a further portion of its contents evacuated. The pedicle was then transfixed and ligatured, after which the sac, weighing nine pounds, was removed. The wound was then united by three sutures.

On the 7th day union had nearly taken place, and on the 16th the ligatures came away. The woman does not appear to have had any febrile reaction.*

— The subject of Dr. Miller's case was aged 37, and had first observed the tumour a few months previously. On examination, Dr. Miller discovered a large tumour in the abdominal cavity, extending considerably above the umbilicus, and mostly occupying the right side, but stretching across the linea alba. Its shape was irregularly globular, and its consistency variable, being, at some points, much firmer than at others; and in portions of it fluctuation could be distinguished. Pressure upon it, even rude handling, gave no pain, and it appeared to be, in some degree, moveable in the cavity.

Examined per vaginam, the tumour could be felt within the pelvis, and the uterus was found in its normal condition.

The operation of excision was performed on the 6th of April, 1848, with the assistance of Professor Gross, Drs. Bayless, Colescott, W. B. Caldwell, and T. J. Richardson. The patient being placed upon the table, on her back, her feet resting upon a chair, and the chloroform having been administered, an incision was made through the integuments, over the linea alba, from the umbilicus to the pubes. The fasciæ and peritoneum were then divided, by several strokes of the scalpel, at the upper part of the incision, and a finger introduced to guide the probe-pointed bistoury, with which an incision was made through these tissues corresponding to that of the integuments. The tumour was now brought to view, and found adherent, though not very firmly, to the omentum and parietes of the abdomen. To break up these adhesions, Dr. Miller passed his hand into the abdominal cavity and around the tumour, and had no difficulty in accomplishing the object. It was soon ascertained that the tumour was too large to be pushed through the opening that had been made, but rather than extend this, he punctured two of the cysts, and discharged a quantity of fluid, like that which had been drawn off by tapping a week previously—the quantity could not be estimated, as it was suffered to run upon the table, whence it flowed across the room. By getting his hand posterior to it, Dr. Miller now drew the tumour through the incision, and supported it, while Professor Gross secured its pedicle, by a strong ligature, passed through the broad ligament, and tied round the fallopian tube and ligament of the ovary, and then severed its connexions by cutting across the broad ligament near the inferior part of the diseased ovary. The vessels of the outer extremity of the broad ligament bleeding considerably, these were secured by another ligature which included the whole of its margin.

The tumour being removed, the ovarian fluid which had been effused, in considerable quantity, into the abdominal cavity, and likewise the blood, were carefully sponged out, and the incision was closed, as usual, by the interrupted suture, adhesive strips, compresses, and bandage, the ligatures having been

* Gazette Médicale.

brought out at the inferior part of the incision. The operation was commenced at one p.m., and the patient was put to bed in less than an hour, having borne it remarkably well; in fact, she felt, as she declared, very little pain, being under the influence of the chloroform.

Nothing very remarkable occurred during the convalescence; the sutures were cut out on the thirteenth day: on the 19th one of the ligatures yielded to gentle traction; "but the other, although gently pulled at every dressing, did not yield until the 7th of May (the 31st day), at which time the wound was firmly closed, except the small opening through which the ligatures were brought out."

The tumour, notwithstanding the tapping and the puncture of two of its cysts, at the time of the operation, weighed nine and a quarter pounds. It is composed of many cysts, of various sizes, having strong thick walls, with smooth, polished linings, and filled, as many of them as were opened for inspection, with the same ropy, white fluid, as that discharged by the trocar.

— In the fatal case recorded by Dr. Branson, the disease had existed three years. The first tapping was performed in 1847. From this time the patient lost ground, but her complexion remained so healthy as to preclude the idea of malignant disease, and as she had never suffered much pain in the tumour, beyond the inconvenience arising from its bulk, there was no reason for supposing that any peritoneal inflammation had at any time existed. Still she grew thinner, and her finger rings became too large for her, a positive proof that the process of absorption was now going on rapidly. About ten days after the last tapping, on June 5th, the wound made by the trocar spontaneously reopened, and a considerable discharge of fluid took place, and continued, more or less, for some days. The discharged fluid was most probably ascitic, for the general size of the tumour was not very materially diminished by its evacuation. The catamenia had never appeared. The advice of Dr. Clay was now sought, and Dr. Branson met him in consultation. The abdomen seemed as much distended as in the last period of pregnancy. A solid tumour, of a somewhat oblong form, supposed by Dr. Clay to weigh five or six pounds, was distinctly felt rising upwards, from the situation of the right ovary; two other sacs were supposed to exist, one of moderate size, which occupied the umbilical region, and one much larger, which occupied nearly the whole of the left side of the abdomen. The whole tumour being moveable, and as traction of the tumour from various points produced no sense of dragging or pain, Dr. Clay was satisfied there existed no formidable adhesions. A careful uterine examination was also made, and the uterus was pronounced free from disease, nor could any trace of disease be detected in any other vital organ. All these circumstances having been taken into consideration, Dr. Clay gave a decided opinion that the case was a fair one for operation. At length, after anxious consideration, it was determined to state the case candidly to the young lady herself, leaving the decision of the question to her alone. She resolved to submit to the operation.

The bowels having been carefully regulated for some days previously, and the general health being in as satisfactory a state as could, under the circumstances, be expected, Dr. Clay commenced the operation in a room properly heated for the purpose, the patient being under the influence of chloroform. It was previously agreed upon that a small exploratory incision should first be made, and in the event of any formidable adhesions being met with, the wound was to be immediately closed, and the operation abandoned. This was carefully done; a considerable quantity of ascitic fluid escaped, and as no adhesions whatever could be felt on the anterior surface of the tumour, the wound was rapidly enlarged upwards and downwards, to the extent of

about nine or ten inches. This brought the tumour fairly into view, bulging out from the lips of the wound. To lessen the bulk of the tumour the largest cyst was punctured, and about five or six pints of gummy glairy fluid drawn off, very different in character from that which escaped spontaneously after the last tapping. On attempting to raise the mass (for the solid portion of the tumour was larger than had previously been imagined), it was found to be tied down posteriorly to the omentum by several bands of lymph, and at one point it was adherent to the bowel. These adhesions were easily peeled off; the pedicle was grasped and tied with a double ligature, and the tumour separated and removed. The wound was then rapidly closed, and held together by six or seven interrupted sutures, the whole operation occupying fifteen minutes, and in little more than twenty minutes' time from the commencement of the operation, the bandages were applied, and the patient again in bed. The action of chloroform was apparently most satisfactory; she lay as in a calm sleep, perfectly unconscious, till nearly the last suture was introduced, when she awoke, and expressed great thankfulness that the operation had been so painlessly performed. For the first twenty-four hours all went on well; but thirty hours after the operation the breathing was somewhat quickened, the pulse had become rather more frequent, and she had vomited two or three times. There was still no action of the bowels. At four o'clock in the morning, thirty-eight hours after the operation, she became suddenly worse; she complained much of flatulency, the countenance was anxious, the respiration hurried, and to these unfavorable symptoms was added general restlessness; this was followed by rapid sinking, and she died forty-four hours after the operation, apparently from the shock of the operation, and not from peritoneal inflammation.

The solid portion of the tumour was found to exceed considerably all previous calculation; it passed backwards towards the spine, thus rendering external manipulation of little avail in calculating its bulk. It weighed twelve pounds; and as about six pounds of cystic fluid, and at least nine or ten of ascitic fluid, were also drawn off, the abnormal contents of the abdomen must have amounted to nearly thirty pounds. The tumour did not consist, as was supposed, of a solid mass, and two separate cysts, but was made up of innumerable cysts, varying much in size, from that of a pea, to one containing several pounds. The solid portion was also composed of cysts, containing a semi-fluid, dark-coloured, grumous, and brain-like matter; it is evident, therefore, how small an amount of relief would be gained by tapping.*

15. *Statistics.*—Dr. Clay, the operator in the foregoing case, has collected and published the results of his experience respecting ovariotomy. It appears that he has opened the abdominal cavity thirty-nine times, and the results of his operations are as follows:

1 Tumour purely uterine; operation fatal.
1 Large uterine tumour with ovarian disease; fatal.
1 Large ovarian tumour with uterine enlargement; the whole removed. Fatal on the fourteenth day from the effects of a fall.
5 The operations not proceeded with; 4 recoveries; 1 death twenty days after the operation.
31 Cases of uncomplicated ovarian disease. Of these 22 recovered, and 9 died.

Total: Recoveries (including exploratory incisions) . 26
Deaths . . . . . 13†

* Provincial Medical and Surgical Journal. † Obstetric Record, vol. ii, 1849.

16. *Sterility.*—Dr. Tilt believes that a great majority of cases of sterility in the female is the consequence of subacute ovaritis, the history and symptoms of which will be found in a former part of this Volume. The treatment of this imperfection is, therefore, merged in the treatment of the inflammatory disease of the ovaries.

— The subject of sterility in general has also been noticed in a paper published in the 'Lancet,' by Mr. Gream. This has since appeared in the form of a very objectionable pamphlet, which, we are happy to be assured by Mr. Gream, was issued without his knowledge or assent.

— Dr. Tyler Smith acknowledges, with Dr. Tilt, that there is a form of sterility having for its cause the plugging up of the fallopian tubes by glutinous secretion, and has suggested an instrument for the catheterism of these conduits. The instrument consists of a very delicate canula, curved at its extremity so as to assume the course of the tube, and carrying a capillary whalebone probe or bougie. The instrument is used with the aid of a speculum; and, according to Dr. Tyler Smith, is readily guided to the orifices of the tubes. It does not appear, however, that he has used it in the living subject in more than one instance. We do not anticipate any practical results from this ingenious instrument.*

— Dr. Rigby has published cases of sterility caused by anteversion of the uterus, the details of which may be read with advantage.†

§ III.—*Pregnancy—Labour—The Puerperal State.*

17. *Vomiting during Pregnancy.*—Dr. Stoltz, of Strasburg, lays down the following rules for the treatment of this distressing affection:

The first thing to be done when we have to treat a pregnant woman affected with obstinate vomiting, is to examine carefully whether the affection be the result of simple pregnancy, or whether there be any complications. In the latter case, the first indication is to treat the complications. Thus, if there be signs of plethora, venesection must be practised, without any anxiety as to the term to which pregnancy has advanced. We may also have recourse to the application of leeches to the hypogastrium, to the upper part of the thighs, or to the perineum, in cases of uterine congestion or inflammation, indicated by a feeling of weight in the pelvis, and pains in the hypogastric region. If there be a feeling of uneasiness in the gastric region, we adopt a mild antiphlogistic treatment, apply some leeches to the epigastrium, give cooling drinks, and administer laxative enemata: a remedy which is by far preferable to evacuant medicines. After having thus simplified the problem by removing its complex elements, if the vomiting continue, the cause must be sought for in certain general or particular conditions which are entirely peculiar to pregnancy; such as the general excitability of the nervous system, which is reduced by antispasmodics, or the morbid excitability of the stomach, the remedies for which are cold or iced drinks in small quantities, the application of an opiate plaster over the stomach, and the internal administration of oxide of zinc and trisnitrate of bismuth. In some women, instead of a morbid sensibility of the stomach, the mucous membrane appears to be deficient in tone. It is then that the greatest benefit is obtained from the use of mild stomachics; such as aromatic infusions, distilled waters, infusion of calumba, alcoholic liquors, excitant and antispasmodic draughts; and if this nervous excitability be complicated with a more or less apparent state of chlorosis, tonics and preparations of iron are administered, and recourse may be had to the application of belladonna to the hypogastric region, or a continuance in the horizontal position.

* Lancet, May 19. † Medical Times, May.

There are still, though fortunately rare, some cases of vomiting which the best-directed efforts fail in curing. In such cases, if the woman is reduced to a state of extreme emaciation, if hectic fever has manifested itself, if every kind of food is rejected, if marasmus makes continual progress, if the patient is threatened with death from inanition, at an earlier or later period, is it not evident that abortion ought to be provoked? since it has been observed that these symptoms have then disappeared, where the vomiting was purely sympathetic with pregnancy, or with a morbid state which it induced or maintained.

With the object of giving clearness to this part of the treatment of vomiting during pregnancy, the author has collected a great number of facts, already reported, or which have been communicated to him. He has arranged them under three categories. The first includes eleven cases of vomiting terminating fatally; in six, abortion had not been proposed; in three others abortion had been proposed, but not practised, in consequence of a difference of opinion; finally, in two others abortion had been unsuccessfully tried, but in one case the operation failed in consequence of an obstacle.

The second category comprehends cases of severe vomiting, cured by spontaneous abortion or premature labour. Cases of this kind are very numerous. Finally, the third category includes the cases of severe vomiting cured by artificial abortion. In this category are reckoned three well-observed cases of premature labour, and many others simply mentioned. Finally, a case of abortion,—properly so called,—and others, which are mentioned very briefly by authors. One case alone (and that of doubtful authority) is known in which severe vomitings have permitted pregnancy to arrive at its full term.*

— Dr. Meigs states, that, in a great number of the cases of obstinate vomiting in pregnancy, the symptom may be suspended by causing the patient to take a cup of coffee and dry toast very early in the morning, after which she is to be quiet till her usual time of rising.†

18. *Uterine Moles—New Symptom of.*—It is well known that the diagnosis of false conceptions, as they are called, is exceedingly difficult; the pretended signs derived from the shape of the abdomen, its more rapid development, absence of fœtal movements, &c., being far from affording positive information. The new sign of M. Vannoni will not, we fear, tend much to clear up the obscurity, but such as it is, we lay it before our readers. Having studied uterine auscultation with great assiduity, this writer thinks that he has discovered a double intonation in the uterine bruit, one rough, the other smooth. He also finds that in natural pregnancy the soft sound predominates, while in disease and death of the fœtus the rough and smooth sound are of equal intensity and duration. The same, he concludes, will be the case in moles, and having predetermined the point, he soon found a case in support of his hypothesis. Little value, we need scarcely say, is to be attached to this communication.‡

19. *Extra-uterine Fœtation—Gastrotomy.*—The particulars of this remarkable case were related by M. Tueffard to the French Academy of Medicine.

The patient, a little thin woman, æt. 40, had been pregnant five times previously to the present illness; of these pregnancies, four ended in premature labour at seven months; the fifth arrived at full term. The extra-uterine was the sixth pregnancy. The fœtal movements were very perceptible up to the sixth month, when, after exertion, the patient felt the child suddenly start up towards the left hypochondrium, and then fall back again in the iliac region

* London Journal of Medicine, No. 2. † Op. cit. p. 167.

‡ Gazetta Toscana; Revue Méd.-Chirurgicale, Dec. 1848.

of the same side. She had, at the same time, violent abdominal pain and considerable hemorrhage. From this time the fœtus ceased to move, and the body diminished in size. Her symptoms afterwards were frequent and copious hemorrhages of periodical occurrence; in the intervals, excessive abdominal pain. When seen by the author, these symptoms had continued for six months. He discovered a tumour above the right groin, in which it was easy to perceive the form of the fœtus. The os uteri was healthy and closed, the cervix of its natural size, and the whole organ was moveable. The patient being very anxious for an operation, after the inhalation of ether the author made an incision over the tumour, in a direction parallel to the linea alba. After dividing the skin, muscles, and peritoneum, he came upon a whitish membrane, forming a cyst and containing a matter very similar to adipocire; below this was another cyst, which contained the limbs and trunk of a fœtus, the head and upper extremities having escaped into the general cavity of the peritoneum, to which they had contracted firm adhesions. Further examination showed that the fundus of the uterus was destroyed, the cyst containing adipocire being closely adherent to, and forming one cavity with the uterus; the cysts were removed and the abdominal incision closed by interrupted suture. As the vagina communicated directly with the peritoneal cavity, it was not necessary to insert a tent into the lower part of the incision, the discharges being enabled to drain off *per vias naturales*. The subject of this extraordinary case is said to have perfectly recovered.

20. *Multifœtation—Quintuple Birth.*—An instance of unusual fecundity was met with, and is recorded by Mr. James Russel, in which five fœtuses were expelled; of these the largest was six inches, and the smallest five inches long; of course they were all dead. There was not any hemorrhage, and each fœtus was expelled by one separate pain. The uterus contracted so firmly that it was impossible for the attendant to get his finger within the os, for the purpose of removing the placenta; he consequently remained with her, and after an hour and a half, no other pain manifesting itself, he desired that she might take a draught, with infusion of roses, and a drachm of ergot of rye. This, in about four hours, was followed by a solitary pain, and the placenta came away. Upon examination, it was found to be of the ordinary size for the period, and had attached to it five umbilical cords, arranged in a circular form around the centre.*

21. *Labour and its Complications—Premature Labour—Circumstances under which it may be induced.*—Professor Paul Dubois attempts to define the cases, exclusive of contracted pelvis, in which it becomes requisite to induce abortion. The propositions on the subject laid down by him are subjoined.

"1st. Premature labour is more certainly indicated and induced with more chance of success, according as the morbid states for which it is resorted to as a cure are more closely connected with pregnancy, and the necessary concomitant conditions of that state.

"2d. Further, success is more probable according as the circumstances indicating the operation are likely to disappear on the cessation of pregnancy.

"3d. It is necessary that the operative procedure be simple, and such as adds no additional danger to that which already exists."

From these propositions we may deduce the following consequences:—That artificial labour will succeed best in those maladies aggravated chiefly by the mechanical changes in the uterus; whilst, on the other hand, the chances of success will be less when the operation is performed for an intercurrent disease. Further, those cases arising from, and depending upon, simply mechanical

* Lancet, Feb. 3.

causes, will be more likely to be benefited than those arising from sympathetic changes.

The first mechanical condition requiring the operation, is *excessive dilatation of the uterus by superabundance of liquor amnii.* In illustration, a case occurring in the practice of M. Duclos (see Bulletin de la Faculté, tom. vi, p. 222) is cited, where artificially-induced labour evidently saved the mother's life. Another interesting case is mentioned, where M. Stoltz had resolved to resort to the same plan under circumstances of the greatest urgency, but nature had completed the work before his arrival at the patient. The waters had flowed off, and complete delivery restored the woman to comparative health.

The second set of cases sometimes demanding the operation, are those where, in addition to the pregnant uterus, *the abdomen contains a large tumour.* Thirdly, cases where, from *malconformation of the pelvis and trunk*, there is not sufficient space for the uterus to develope itself. We may remark, however, that in these last sets of cases, premature labour generally comes on spontaneously.

Fourthly, cases of *retroversion of the uterus*, in which it becomes impacted in the small pelvis.

Fifthly, those cases of *uterine hemorrhage* where nothing but the evacuation of the ovum, and the contraction of the uterus, will stop the bleeding.

We now come to another series of cases demanding the operation; and firstly, we mention those nervous diseases which may demand it when they exist to an excessive and dangerous degree, as *chorea*, *convulsions*, &c. But M. Dubois inculcates extreme caution in such cases, as also in cases of *obstinate vomiting* during pregnancy. Two cases are mentioned in which *cholera* supervened upon pregnancy; in one labour was induced, in the other it came on spontaneously; both women recovered.

There is another series of cases sometimes demanding the operation; namely, where there exists chronic disease, very much aggravated by the mechanical distension of the uterus, as *disease of the heart*, *of the aorta*, *asthma*, &c.

Again, it has been proposed to bring on labour in cases where the child has been previously found to *die at some regular time*, before the completion of the ninth month. But this ought to be done only when the infant is still alive and viable, and even then it should be resorted to with reserve, as there may be hope that the disease which caused the death of the child in a former pregnancy may have now disappeared.*

22. *Retroversion, during Pregnancy.*—M. Van Heugel relates a case in which spontaneous reposition of the uterus took place after emptying the rectum and colon of an immense quantity of impacted fæces.

A young woman, three months advanced in pregnancy, experienced great difficulty in making water, with pain in the abdomen. On examination the os uteri was found under the pubes, and the fundus projected upon the sacrum, and depressed into its hollow. The urine was drawn off, and a large enema was exhibited by means of a tube, which was passed up to the sigmoid flexure; an enormous quantity of scybalæ were thus removed, and upon a subsequent examination, it was found that the fundus had resumed its natural situation.†

23. *Engagement of a Loop of Intestine before the Womb during Labour.*—Dr. Meigs relates an instance of this rare complication. The patient was a primipara. The labour had proceeded regularly until the os was almost fully dilated, when she began to complain severely at the occurrence of each pain.

* L'Union Médicale, Nov., and Edinb. Monthly Journal, Dec. 1848.

† Revue Médico-Chirurgicale, Sept. 1848.

Dr. Meigs was induced, from the severity of the suffering, to suspect that rupture of the uterus was impending; but on examining the abdomen externally, the cause of the unusual pain became evident. Dr. Meigs found an irregular eminence, which, from its sonoriety on percussion, he recognised as a loop of intestine, which had slipped down between the fundus and the abdominal parietes, and which was severely compressed by the uterine and abdominal contractions. He was enabled to push up the intestine, after which the labour proceeded naturally.*

24. *Placenta prævia—Extraction of the Placenta.*—Dr. Meigs thinks that too much confidence is placed in this proceeding as a means of arresting hemorrhage, but he bases his opposition rather upon his objections to the anatomical explanations connected with the mode in which the bleeding is arrested, than upon any practical experience he can lay claim to.†

25. *Rupture of the Uterus—Recovery.*—The following is an unequivocal instance of recovery from this severe accident, with the additional and most remarkable complication of abscess of the abdominal parietes.

The patient, a corpulent female, æt. 40, was attended by Mr. Church, of Sittingbourne. On the 9th September, the os uteri being fully dilated, this gentleman was sitting by her, expecting a speedy termination to her labour, when she suddenly exclaimed that she had the cramp in the abdomen; she soon afterwards vomited. On examination it was found that the head had receded, and the limbs of the child could be distinctly felt in the peritoneal cavity. On introducing the hand, an oblique rent of the fundus was discovered. The child was extracted dead, and the placenta soon followed. An opiate was given.

The next day vomiting became urgent. The tongue subsequently became brown, and the abdomen tender and tympanitic; afterwards diarrhœa ensued. Fomentations externally, and opium and hydrocyanic acid internally, formed the principal treatment. On the 25th a circumscribed redness was noticed to the left of the umbilicus, which ended in an abscess, discharging a large quantity of fetid pus. The same was also discharged per vaginam. The debility consequent on the immense discharge was met by nutriment and stimulus, and the patient eventually made a good recovery.‡

26. *Prolapse of the Funis during Labour.*—Dr. Hoffman does not admit the validity of the explanation of this occurrence, which refers it to a disproportionately large pelvis or small head. If this were the case, the accident would, he thinks, be met with far more frequently than it is, and especially during premature labours. He believes it to be dependent upon an irregular contraction of the uterus, whereby the lower segment of the organ becomes unduly relaxed. He has never met with it in cases in which the pains have manifested their normal activity, but only in those in which they have assumed a spasmodic character. Upon these grounds he declares the mere reposition of the funis, unless the character of the pains can also be changed, to be of no avail; for the lower segment of the uterus not being applied to the head in these irregular pains, as it should be, the prolapsus is sure again to recur.

Moreover, the reposition of the funis is opposed by a general law which, however easily demonstrable, the author does not recollect to have ever seen stated. It is that *when during the progress of labour any portion of the ovum has quitted the cavity of the uterus, it can never be replaced.* As soon as any of the liquor amnii is discharged, the walls of the uterus become closely applied to the contour of the child, and the size of its cavity *pro tanto* dimi-

* Op. cit. p. 427. † Op. cit. p. 387. ‡ Lancet, May 19.

nished. Just in proportion as the parts of the child quit this cavity does its size continue diminishing, and neither a spontaneous or artificial return of these is possible. So it is with the funis; the cavity of the uterus having diminished in size since its descent, there remains no longer room for it. The general conclusion to be drawn is, that when the funis is prolapsed, to save the child, we must resort to turning, and place no reliance in the various instruments which have been contrived for its replacement.*

— Dr. Meigs recommends the following method of reducing the prolapsed cord:

"Take a piece of tape, a quarter of an inch wide and four of five inches long; half an inch from the end fold the tape back, and sew the edges, so as to make a small pocket, repeat the same at the other end. Now, if the cord be taken in the tape and held as in a sling, a catheter may be pushed into one of the pockets, and this again into the other, so that we have the cord held as in a sling, which is itself supported by the catheter. Let the catheter be now pushed up into the womb beyond the fœtal head, it will carry the cord with it, and the catheter being withdrawn, the tape is left in the uterine cavity, where no harm can arise from its presence."†

— Mr. J. B. Brown narrates an instance of prolapse of the funis at the second month of pregnancy. The accident was followed by abortion.‡

27. *Turning in Narrow Pelvis.*—In proceeding with the continuation of Professor Simpson's essay, we beg the reader's attention to the last Volume, p. 306, in which the author has studied the subject in reference to its effects on the maternal life. The next portion of the communication is devoted to the consideration of the comparative danger of local lesions to the vagina and uterus in delivery by turning, and delivery by instruments respectively.

On each of these points Dr. Simpson remarks at some length, and concludes with the following deductions:

1st. Morbid contraction of the brim is, whatever mode of delivery be adopted, liable to cause rupture of the uterus.

2d. This morbid contraction becomes chiefly a cause of rupture, when, in conjunction with it, the labour has been allowed to become long and protracted; and the compressed tissues of the cervix have, consequently, been rendered preternaturally friable. Then—

3d. It necessarily follows that this complication would, in all probability, be avoided, provided either nature or art was enabled to deliver the patient early, and did not permit of the tissues of the lower part of the uterus to become wedged in, contused and softened, between the presenting part and the points of contraction of the pelvic brim. Hence a power of artificially terminating labours with this complication, as soon as dilatation of the passages permits, would be so far a means of averting this fearful accident. In delivery by turning we have such a power; and by the exercise of it in these cases, we may, I believe, not only save the mother, but the child; and I have already shown, at sufficient length, that the degree of force required to extract the head, will depress and groove the cranial bones of the child, without necessarily tearing or injuring the soft pelvic tissues of the mother, provided always these tissues have not been previously brought into a state of friability by the duration of the labour. All the evidence adduced in different parts of this memoir, go to show the fact that the danger attendant upon turning, and other modes of operative delivery, is, as a general rule, regulated less by the mere performance of the operation, than by the time allowed to elapse prior to operative interference. And in addition, the evidence brought for-

* Neue Zeitschrift für Geburtskunde; Brit. and For. Med.-Chirur. Review, April 1849.

† Op. cit. p. 414.

‡ Lancet, Nov. 4.

ward in the last section (see Abstract, Vol. VIII, p. 306) appears to entitle us to deduce, as a corollary to this law, that (supposing the soft parts are dilated or dilatable) when operative delivery by the forceps, or crotchet, or turning, is accomplished with *comparative force*, it is safer, *cæteris paribus*, to the mother if performed *early*, than the same operation would be if accomplished with *comparative facility*, but performed *late;* in other words, that force is less dangerous than protraction.

4th. It must still be held constantly and prominently in view, that in the the proposed practice of turning, the great maternal danger to be avoided is injury and laceration of the uterus, and care must be taken to avert this accident. The preceding observations point out that, in order to avoid it—1st, the operation should be performed early, even, if possible, before the membranes are ruptured; 2d, if the waters are evacuated, and the uterus has contracted, the uterine fibres should previously be relaxed by opium or chloroform; 3d, the actual turning should be done with extreme caution, and during the intervals of the pains.*

[The completion of this memoir being not yet accomplished, we must defer its further notice till our next Volume.]

28. *Suction Tractor as a Substitute for the Forceps.*—Dr. Simpson has called attention to the possibility of making a practical use of the suggestion, made long since by Dr. Arnott, of extracting the child by means of a force afforded on the principle of the vacuum. The instrument devised consists of a syringe and piston, having a disc attached, formed of a double cup made of Indian rubber or gutta percha. By this a sufficient hold of the head can be obtained to allow of its extraction.

— The merit of this invention was, soon after its promulgation, claimed by a Dr. Mitchell, a recent pupil of Professor Simpson's, and a correspondence has been the consequence, which, as far as we can ascertain, exonerates Dr. Simpson of having, as he is accused, availed himself without acknowledgment of Dr. Mitchell's ingenuity.

— The idea of using atmospheric pressure for obstetrical purposes, appears also to have occurred to Mr. James, of Exeter, but the idea was never carried into execution.

To those who are curious in the matter of controversy, we may state that the correspondence between Drs. Simpson and Mitchell may be found in the 'Medical Gazette,' April 6 and 13, and in the other weekly journals of the same date.

29. *Tractor Vectis.*—Under this title, Mr. Ogden describes an instrument, the superiority of which consists in its being used as an extractor, and not as a lever of the first kind, on which latter principle the forceps partly, and the lever wholly, acts. On this account it is less liable to injure the mother and child than ordinary instruments. In appearance it much resembles one leg of the forceps, excepting that the curve is sharper, and the oval ring or fenestra is so shaped as to allow of a secure hold on the chin or occiput. The oblong diameter of the fenestrum is 1 7-8ths of an inch, and the transverse 1 1-8th of an inch. The rim encircling this is of uniform thickness, and 3-8ths of an inch wide. The mode of applying the vectis in a natural presentation is to introduce it with the convex side towards the hollow of the sacrum, and when arrested by the contact of the curve with the promontory, it is to be carried under the ramus of the ischium to the right or left, as the case may require, pushing forward the instrument in the axis of the ear, and raising the handle, when the curve adapts itself to the chin, and receiving it into its fenestrum, becomes placed in a line from the ear to the vertex.

* Provincial Journal, Jan. 10, 1849.

Mr. Ogden states that he has accomplished delivery with this instrument in several cases of contracted pelvis, and in others where in previous labours craniotomy had been required.*

30. *The Puerperal State—Puerperal Fever.*—Professor Martin, of Jena, concludes an able memoir on this subject, with the following summary:

1st. The term *puerperal fever* is one which deserves to be retained in our medical nomenclature, since all the febrile diseases incidental to childbed originate in one common cause.

2d. This common cause may be traced to the peculiar character of the blood of women in childbed.

3d. Besides this general cause, which is necessarily incidental to the puerperal condition, there is another special incidental cause, not of invariable, although of very frequent occurrence, which is connected with the simultaneous deviations in the character of the blood that are observed in many cases, and which appears to influence the nature of the febrile condition, and in part, likewise, the mode and locality of the deposition.

4th. These incidental deviations in the character of the blood are the causes of the epidemic occurrence and difference of the puerperal fever; but they may also be induced in some women by individual circumstances, in which case, they affect the symptoms, course, and termination of the disease in the greater number of those affected at the same period, although there may not actually be any epidemic at the time.

5th. Such sporadic cases of puerperal fever do not, however, necessarily presuppose a special disposition, since any morbid exciting cause may induce puerperal fever, where there is no other predisposing cause than that incidental to childbirth generally.

6th. A distinction between the differences in the character of the fever is fully as important for the prognosis and therapeutics of the disease, as for the separation of the individual local affections, which, in their turn, influence the different forms of puerperal fever.

7th. These local affections consist in the derangement of certain constituents of the blood, or in the transformation of the blood itself, and vary considerably, according to the epidemic or sporadic character of the blood on the occurrence of the disease, whence plastic depositions and softening of the tissues (in consequence of infiltration with serum) may equally occur.

8th. Local affections are most frequently met with in the interior portion of the sexual organs, especially in the uterus; but they likewise often occur in remote parts of the body, without there being any evidence of a previous uterine derangement. These affections are not, therefore, of special importance with reference to puerperal fever.

As the principal objects for future inquiry into the nature of puerperal fever, the author mentions the following:

First. Chemico-microscopical examination of the blood, urine, sweat, &c., of women in childbed, pursued simultaneously in the case of many, and renewed at different times, with a comparison of the results of investigations carried on simultaneously with reference to the blood of healthy women not pregnant, and not immediately after childbirth.

Secondly. Chemico-microscopical investigations of the blood, the secretions and excretions of women suffering under puerperal fever, carried on simultaneously in the case of many, or at different periods, and at different epochs of the disease, having constant and special reference to the symptoms, mode of treatment, and the termination of the disease.

Thirdly. A careful investigation of analogous dyscrasic processes of exudation,

* Obstetric Record, Feb. 1, 1849.

as, for instance, of rapidly fatal termination of peritonitis exsudativa in scrofulous and gouty persons.

Fourthly. A more careful distinction between the different febrile characters, that is to say, between the peculiar varieties in the symptoms and exudations observed in the case of one and the same local affection, and a comparison of these with the individual character of the blood. And finally—

Fifthly. A distinction between individual local affections, and between the different forms of puerperal fever.*

31. *Causes of Endemic Puerperal Fever.*—The prominent causes of puerperal fever, as it occurred in the midwifery hospitals of Vienna, have been noticed in a communication to the Medico-Chirurgical Society by Dr. Routh. The remarks, however, apply only to one hospital, in which the deliveries average from 250 to 300 a month. These labours are conducted in two departments, one devoted to the instruction of medical men and midwives, the other to midwives only.

The mortality in the division for midwives and medical men has generally been thirty per month, and has occasionally been seventy. In the division for midwives only, the number of deaths has generally been from seven to nine per month. The clinical instruction is conducted on precisely the same general plan in the two departments; but the medical men receive also practical instruction in a private course, in which the operations are performed on the dead body of some female, while the midwives receive this instruction by means of the leather figure. The frightful mortality in the division to which medical men are admitted, became the subject of a government inquiry, and the number of students in attendance was reduced from forty to about thirty. The mortality, however, remained the same as before. On inquiry, it was found that in other countries, where there were two divisions in the lying-in hospitals, one for midwives and another for medical men, the mortality was far greater in the latter. The author shows that this difference could not depend on the manipulations of male attendants being more rough than those of midwives, nor to the influence of contagion or infection. He adopts the explanation proposed by Dr. Semelweiss, the assistant-physician of that division of the Vienna Lying-in Hospital in which the great mortality has occurred—namely, that the real cause of the mortality from puerperal fever there, was the "uncleanliness of medical men and students in attendance;" their hands being impregnated with cadaveric matter through dissecting, making autopsies, and performing obstetric operations on dead bodies. Dr. Semelweiss recommended all students attending his division of the lying-in hospital not to handle the dead matter, or, if they did so, forbad them making any examination of the patients till the following day. And he directed every student to wash his hands in a solution of chlorine prior to and after every examination made on the living subject. The result was, that the number of deaths was reduced from thirty per month to seven per month, the usual average mortality of the division for midwives only. The author makes some remarks on the modes in which the cadaveric matter may be introduced from the hand of the medical attendant into the system of the woman. He then describes the characters of the puerperal disease so fatal in the Vienna Hospital, with the view of demonstating its resemblance to the effects of a poisoned dissection wound; and he concludes by recapitulating the inferences which he believes to be justified by the facts stated in his paper.

[In the above accusation, that medical men and students passed from the post-mortem table to the lying-in ward without washing their hands, it must be remembered that Dr. Routh is speaking of a continental hospital. That

* Henle und Pfeufer's Zeitschrift, and Brit. and For. Medico-Chirurgical Review.

such uncleanliness was not unfrequent we can perfectly believe, for our own reminiscences of medical students in foreign hospitals is, that they may be included among, personally, the very filthiest of civilized humanity.

§ IV.—*Diseases of Children.*

31. *On the Excito-motory Origin of the Attitudes of the Fœtus in Utero.*—Various opinions have been adduced in explanation of the usual position of the fœtus at birth with its head downwards; but at the present time two are chiefly entertained: first, that it is the result of gravitation; secondly, that it is dependent on a vital voluntary act on the part of the child itself. Dr. Simpson has endeavoured to show that neither of these views are tenable; but that the natural position is due to involuntary excito-motory movements of the fœtus. He commences a long essay on this topic by discussing the first of the opinions referred to, to which he brings forward the following objections:

1st. The doctrine of gravitation presupposes that the mother's body is in an upright position; but during sleep and rest (that is, more than half the period of gestation) her body is placed horizontally, and ought to afford more chances than are shown by statistics, of the head falling into other than the normal position—in the cavity of the cervix.

2d. The doctrine further supposes the child to be suspended in utero by the cord, but this is not the fact, at least in the latter months, when the child takes the position alluded to. In order to suspend the fœtus, the placenta should in all cases be implanted into the fundus, which is known not to be the case. The cord also should be shorter than it is known to be.

3d. If gravitation were the cause, the position ought, *a fortiori*, to be found with more certainty and frequency in hydrocephalic children, with heads beyond the average weight. But Dr. Keith has shown that in such cases preternatural presentations are even more frequent than in normal cases; and, on the other hand, anencephalic infants are often found to present naturally.

4th. When a child dies in utero, it is still subjected to the laws of gravitation; the dead infant ought therefore to present the head as often as the living. Such, however, is not the case, as is proved by the fact that, in 15,534 children born alive, the preternatural presentations were as 1 : 57, while in 527 putrid children, they were as 1 : 5.

Dr. Simpson anticipates the objection which might be made in regard to the putrid children, viz. that as some were premature, the non-cephalic presentations might be due to that cause, and not to their death simply, by referring to data afforded by Professor Dubois, who found 83 per cent. of cephalic presentations among living children, but only 45 per cent. among dead children of the same term. Dr. Simpson therefore determines that the fœtal position is not due to mechanical but to vital agency.

But the vital cause being allowed, the further question arises as to the nature of the vital action. Is it voluntary? This is the next question replied to.

The question turns upon the fact of the possession by the fœtus of psychical endowment, on which point there was a difference of opinion among the ancients. Ambrose Parè, Cabanis, &c., are shown to have believed that the fœtus had a mental existence, and was capable of feeling wants, as well as of exercising volition. The same opinion was also maintained by Dubois, with whom the author agrees as to the extent and variety of the fœtal movements, and in the result of these movements being conducive to cephalic presentation. The point at which they diverge is the character of these movements, Dubois

considering them to be voluntary; Dr. Simpson, that they are excito-motory. That they are of the latter character he then proceeds to argue, by showing that they correspond with other movements of undoubted excito-motory origin: 1st, in the anatomical conditions under which they are performed; 2d, in the origin and character of the movements; 3d, in the physiological object with which they are accomplished. The correspondence the author subsequently shows more in detail.*

32. *Hemorrhage from the Umbilicus.*—An instance in which several male children of the same mother died of hemorrhage, after the separation of the funis, has been placed on record by Mr. Ray. It is remarkable that the female children escaped. In one of the fatal cases which he examined after death, a sort of aneurismal dilatation of the umbilical arteries had occurred, which appeared to prevent their closure, as in the normal state.†

33. *The Cerebral Diseases of Infancy.*—This important class of maladies has been made the subject of two monographs, one by Mr. Dendy, the other by Dr. Valentine Duke.

— Mr. Dendy commences his essay with introductory remarks on the intra-uterine life of the fœtus, in the course of which he expresses his belief in the opinion that the development of the embryo may be greatly influenced by the mental emotions or imagination of the mother. He then passes on to consider the diseases which may originate in injury received during labour, after which he arrives at the subject of the cerebral diseases which arise after birth. Of these he has in the present essay touched upon only two—viz. erethism and encephalitis. We should mention that he has also included laryngismus stridulus; not, as it appears, from any agreement with those pathologists who regard it as cerebral in its origin, but from its tendency to lapse into congestive or inflammatory disease of the brain, when long continued and frequently repeated. The symptoms of erethism and of acute encephalitis, in its stages of exalted and depressed sensibility, are minutely described; but not only are there no observations which can be considered original, but the author does not appear to have availed himself of the vast fund of information on the subject of infantine disease which during the last few years has been opened up, especially by the industry and energy of French writers. Mr. Dendy's treatise is just such an one as might have been written and esteemed twenty years ago, but is decidedly not *au courant* with the knowledge of the present day.‡

— Dr. Duke's essay, which gained the prize of the Provincial Association, is one of more extent and pretension, but is still far from being a comprehensive treatise on the cerebral diseases of infancy. Many of these, and some important ones, as, for instance, meningeal apoplexy, a most interesting affection, and one of more frequent occurrence than is suspected, and often treated for acute hydrocephalus, is entirely omitted; others, as the "hydrencephaloid" affection, and "convulsions," are treated with most unmerited brevity. Acute hydrocephalus is, in fact, the only disease which meets with due consideration. We shall not follow the author further in his essay, because it is a simple compilation, and does not profess to contain the results of original experience and investigation. We may state, however, that as a *résumé* of the present state of knowledge on the subject, it is, as far as it goes, worthy of the perusal of our readers.§

* Edinburgh Monthly Journal, March, April. † Medical Gazette.

‡ On the Cerebral Diseases of Children, with reference to their Early Symptoms and Treatment. Journal of Psychological Medicine, No. 3, 1848.

§ Essay on the Cerebral Affections of Infancy and Childhood, &c. Transactions of the Provincial Medical and Surgical Association, vol. xvi, Part I.

34. *Laryngismus Stridulus.*—The disease which goes under this name has been chosen as the subject of a truly valuable treatise by Dr. Reid. Laryngismus is described by him as occurring under four forms. In the first, the spasm of the glottis is slight, so that the rima is only diminished and not closed. The effect of this is to produce a slight catching of the breath, accompanied by the noise familiarly known as "crowing." There is no general spasm, and the complaint is but little regarded, from its comparative mildness.

In the second form, the area of the glottis is further diminished, and in consequence the interruption to the breathing is more serious and prolonged, and the general symptoms of lividity or pallor of the countenance, &c., more alarming. There is also frequently a convulsive action of the flexors of the extremities, causing a bending inwards of the thumb and great toes.

The third form is still more formidable, as to the local laryngeal spasm there are superadded general or cerebral convulsions.

The fourth form is that in which the spasm of the glottis is sudden and complete, and the infant perishes at once from asphyxia.

Dr. Reid passes on from the description of these forms to the consideration of the predisposing causes; among which, the most prominent are age and natural habit or constitution. As to age, the period of dentition is that most amenable to the disease. Dr. Reid, however, admits that it may occur at a period prior to the eruption of the teeth, and mentions a case in which it occurred as early as two days after birth.

Constitutional peculiarity also appears as a powerful predisposing cause of the disease. Dr. H. Davies has seen it attack four children in the same family. The scrofulous habit is thought by many to be favorable to its development, but this Dr. Reid considers as doubtful.

The author enters fully into the causes of laryngismus. The immediate cause is closure of the glottis, but the remote cause is still a matter of dispute. Dr. Clarke, as is well known, considered it as of cerebral origin; Dr. Ley as depending on irritation of the pneumogastric nerves by enlarged bronchial glands. Others, as Kopp and Hirsch, and Mr. Hood, of Kilmarnock, regard enlargement of the thymus gland as the cause. These theories are discussed by Dr. Reid *seriatim*, and their fallacy is exhibited by arguments drawn from physiology and the results of treatment. He then propounds his own views of the pathology of the disease, which may be briefly expressed in the following propositions:

"1st. That for the occurrence of the complaint, the cerebro-spinal system is required to be in a peculiarly excitable state, which thus acts as a predisposing cause. The period of teething is the most likely one to produce this condition.

"2d. That during this irritable state of the nervous centres, the two most frequent causes are the *improper description of food* administered to the infant, and the *impure* and irritating atmosphere which it breathes."

By improper food the author does not mean artificial food only, but also deteriorated states of the maternal milk; the latter, however, is comparatively seldom the source of the disease. The great source is, comparatively, the use of artificial diet, as it is not to be doubted that the disease seldom appears in an unweaned infant. Dr. Reid has only met with two instances of the kind in a large experience.

After entering more into detail respecting the ill effects of rearing by hand, the author proceeds, in the next place, to the diagnosis of laryngismus, distinguishing it from croup, hooping-cough, and hydrocephalus, the diseases with which it is most likely to be confounded.

The important subject of treatment next comes under consideration. This

Dr. Reid speaks of under the natural division of that required during the paroxysm and during the interval.

In the paroxysm he recommends the warm bath, stimulating enemata, cold douches to the face and chest, and, if necessary, artificial respiration. He discusses the question of tracheotomy, but without adducing any arguments in its favour. He also suggests that ether inhalation may be resorted to. [Of the benefit of this, we have recorded a marked instance which came under our own knowledge, in a case of more than ordinary severity (see Abstract, Vol. V, p. 389). The case was at the time under the care of Mr. Image, of Bury St. Edmunds, who has given its particulars.]

In reference to the treatment during the interval, the author alludes first to lancing the gums. His observations on this head are judicious, and most worthy of attention. Bloodletting is considered as generally unnecessary, and in all cases requiring great caution; in this we entirely concur. Regarding intestinal irritation as the predominant exciting cause, purgatives may be supposed to take an important place in the author's code of treatment. Of antispasmodics he also speaks in terms of commendation. His favorite formula is—

Sp. ammon. fœtid., ℥s;
Tinct. hyoscyami, ♏x;
Syrup. aurant., ℥ss;
Sp. ainsi, ℥j;
Acid. hydrocyan. dilut., ♏v;
Aquæ, ℥j.

Sumat coch. minimum unum ter in die.

Tonics are required as auxiliaries. Of these the author prefers the vin. ferri.

But the most important part of the treatment of these cases is indisputably that which has reference to the diet and general hygienic management of the infant. On this point the author's remarks are particularly worthy of perusal. As a matter of course artificial food is repudiated, and a wet-nurse is enjoined when the mother is incapacitated from suckling. There are, however, many cases in which the providing a wet-nurse is a matter of impossibility, and in such cases it becomes imperative to bring up the infant by hand. Dr. Reid furnishes rules and precautions on this point, which may be advantageously referred to both by physicians and mothers.

Change of air is recommended as an essential adjuvant in the cure.

— A paper on the subject of laryngismus infantum has recently been published by Mr. Roberton, of Manchester. The remarks on treatment are judicious, and in all main points are in accordance with those expressed by Dr. Reid.

35. *Enlargement of the Liver and Spleen in Children.*—Dr. Battersby has described several cases of enlargement of the abdomen in children depending upon disease of the liver and the spleen; a form of disease which he states has been overlooked by systematic writers on the diseases of infancy. The disease in the liver appears in some instances to have been acute hepatitis, in others hypertrophy of the organ. Both the hepatic and splenic disease he regards as produced in most cases by protracted lactation.*

36. *Contusion of the Scrotum in Breech-presentations.*—M. Van Hœslorbeck calls attention to contusion and consequent gangrene of the scrotum as a not unfrequent event in breech-presentations. Having met with three cases in which the child died from sloughing of the parts, he has since always adopted the precaution of pushing the scrotum up above the union of the thighs, and preventing its descent by mechanical means.†

* Dublin Quarterly Journal. † Revue Médico-Chirurgicale, Sept. 1848.

IV.

REPORT ON THE PROGRESS OF ANATOMY AND PHYSIOLOGY.

The British contributions to physiological science in the shape of distinct treatises, which have appeared since the date of our last Report, are not numerous, and with one or two exceptions not important. The works for which we claim this exception are the 'Handbook of Physiology,' by Dr. Kirkes, and the 'Supplement to Müller's Physiology,' by the same author and Dr. Baly conjointly.

— The 'Handbook of Physiology' was originally intended simply as a condensed abstract of the more comprehensive 'Elements of Physiology' by Müller, and therefore mainly consists of extracts from the more important portions of that work. But in the progress of the undertaking, it was found that many of the theories and views propounded in the 'Elements' have been either controverted, or so far modified by later discoveries and experiments, that on some subjects the present volume was required to contain strictly original matter. For this part of his labours, as well as for the task of condensation, Dr. Kirkes has already shown himself competent, by his excellent Reports on Anatomy and Physiology, which have from time to time appeared in this Journal. We take pleasure, while expressing our regret at the termination of his literary co-operation with us, in observing that his time in the interim has been employed in a manner at once conducive to his own reputation, and the convenience and enlightenment of the numerous class of students who will doubtless make the 'Handbook of Physiology' their chief book of reference.*

— The 'Supplement to Müller's Physiology' includes the more recent advances in the physiology of motion, the senses, generation, and development. Much of the matter has already been given in our former Reports.†

— Mr. Smee has published a volume entitled 'Electro-Biology, or the Voltaic Mechanism of Man,' the object of which is to show the importance of voltaic or electric agency in the various functions of the body, both healthy and disturbed. The work is written in a style which forbids analysis, and we are therefore constrained to refer our readers to the text, in which they will find not a little that is both original and ingenious, as well as somewhat that is unintelligible. That electricity, or its congeners, has more to do with vital manifestations than we wot of, may perhaps be conceded, but we are not disposed with the author to look upon ourselves as little else than mere electric machines.‡

— Another view of muscular action and other bodily functions is adopted by Mr. Wiglesworth—namely, that they depend upon the law of gravity. For the arguments by which he supports this extraordinary notion, we must, as in the preceding case, refer to the original.§

* Handbook of Physiology. By Dr. Senhouse Kirkes.

† The Recent Advances in the Physiology of Motion, the Senses, Generation, and Development. By Dr. Baly and Dr. Kirkes.

‡ Electro-Biology, or the Voltaic Mechanism of Man. By Alfred Smee, F.R.S.

§ The Dependence of Animal Motion on the Laws of Gravity. By H. Wiglesworth, M.B.

§ I.—*General Anatomy and Physiology of Tissues.*

1. *On the Nature of Limbs.*—Mr. Owen has recently given a lecture with the object of showing the unity of type which pervades animal structures. He here illustrates this unity, by reference to the general and serial homologies of the locomotive extremities, in the vertebrated classes of animals. However dissimilar in outward form and use these extremities may be, yet the anatomist can trace through the whole series a unity of type. The strong, stiff, short, flat paddle of the dugong can find its homologue in the thin, expanded sheet of membrane which forms the wing of the bat, and this again in the trowel of the mole. The doctrine of final causes would not lead us to anticipate such uniformity. By this doctrine we cannot account for the multiplicity of parts which anatomy reveals in the stiff paddle of the whale, which plays as one piece on the trunk to which it is attached. "There is," says Mr. Owen, "a deep and pregnant principle concerned in the issue of these dissections." Mr. Owen proceeds to point out the homologous parts of limbs in various classes of vertebrata; when the bone of the horse's arm is compared with that of man, the same type is found to govern the formation of both; there is a diminution of accessory parts in the former, but the essentials are the same. There is a simplification of structure, but not in ratio with the loss of function; the carpal series of bones, again, answer exactly in each. The hand of the horse, though apparently reduced to a single digit, shows the rudiments of two others—viz. the splint bones, and even the very bones in the human hand, to which these correspond, may be pointed out. "To skim the air and to burrow in the earth, would seem to require instruments as different in combination as in size and shape; but observe how closely the skeleton of the mole's trowel conforms, in the number and relation of its parts, to that of the bat's wings. The chief change is this: whatever is elongated and attenuated in the bat, is shortened and thickened in the mole; then again, in the undivided sheath of the fin of the whale, who would expect to find the full number of joints and segments? Yet these bones offer perhaps the most striking instance of an adherence to type, notwithstanding the absence of all those movements, &c., which explain the presence of these several segments in the horse and man, on the principle of final causes. On extending our researches further, we find within what narrow limits of the vertebrate series the type of the anterior member, as seen in man, ceases to be recognisable, and then not by a change, but by a gradual fading away of the pattern; as the limb rapidly disappears at the extreme of the series, we first find one segment abrogated, then the digital rays fall short, then the scapular arch alone remains, and lastly, as in serpents, all trace of arch and appendage has vanished. It is from the study of these transitions, that we gain the deepest and truest insight into their essential nature. But there is a still further uniformity of type, manifested not only in the bilateral symmetry of the body, but also in a similarity between the anterior and posterior extremities; their general resemblance is evident enough; when examined in detail, the ilium is found to repeat the scapula; the broad perforated plates below correspond generally with the clavicles; the femur answers to the humerus, and so on. Again, we find, in certain mammals, the pelvic arch subject to the same variety by defect, as the scapular arch: thus, in the bat, the pelvic arch remains open, while the scapular is closed, and so presents a reversed condition to these arches in the horse, and the cause is obvious: in the bat, the fore-limbs are the locomotive agents, the hind-limbs merely supporting members; in the mole, the fore- and hind-limbs differ in proportion, but not in their composition. The skeleton of

the plesiosaurus shows this unity of type between the fore- and hind-limbs closely preserved, and it is the more striking, as here the conformity is not broken by the opposite flexures, as in the fore- and hind-limbs of terrestrial mammals."

Vicq-d'Azyr first called attention to these serial correspondences; Mr. Owen points out some errors he fell into in his interpretation of them, and then adduces instances to illustrate the true character of the carpal and tarsal bones, which human anatomy alone could never have revealed. By this analysis, we can even point out the very finger in the hand of man, which answers to the fore-foot of the horse, and the toe that corresponds to its hind-foot. "Were anything," says Mr. Owen, "wanting to impress the mind with the conviction of the unity of type which pervades animal structures, it might be such a fact as this. A perfect parallelism reigns in the order in which the toes successively disappear in the hind-foot, and this is beautifully illustrated in detail by Mr. Owen. It is interesting to perceive both in the human hand and foot, that the digits which have been most modified, either by excess or defect of development, are precisely those that are the least constant in the mammalian series—viz. the two which form the extremes of the series; whilst the three intermediate digits are more conformably developed. In the hand, the dig. med., the most constant of all, still shows superiority in size, though few would thereby be led to suspect that the bones forming the three joints of this finger, answer to the great pastern-bone, the little pastern-bone, and the coffin-bone of the horse, and that its nail represents its hoof.

Mr. Owen next inquires: What is the archetype, the essential nature of limbs?—and his investigations lead him to conclude that arms and legs are developments of costal appendages, not liberated ribs, as Oken supposed. A rigorous investigation of their modified forms, as they exist among the different vertebrata, necessarily leads to such a conclusion. A vertebra is a natural group of bones, a primary segment of the endo-skeleton, and its parts are recognisable under all their teleological modifications. Mr. Owen enters into a minute comparative survey of these parts, and he observes, that he only who has been exclusively occupied in human anatomy, will have any difficulty in admitting the conclusions at which he has arrived—viz. that limbs are developments of costal appendages, that the scapular arch has been detached from its centrum, and that this centrum is to be found in the occipital vertebra.*

2. *Muscles, Irritability of.*—Dr. Stannius answers objections made by Bischoff and Valentin to his assertion that muscular irritability is independent of the nerves. He divided the nerves of a frog's leg, and so as to prevent regeneration of their substance; the animal was kept alive for many weeks, and he found that the divided nerves gradually lost their influence over the muscles; and also that when muscular contraction could no longer be produced by irritation of the nerves, the muscles could still be made to contract by the direct application of galvanism, and the microscope could detect no structural change in their primitive fibres. The cut nerves lose their influence over the muscles, in a centrifugal sense, first their trunks, and then their branches; and in such cases their structure appears changed, the trunks become of a darkish-yellow colour, the neurilemma loses its shining, striped appearance; single branches become soft, easily torn, and separated into primitive fibrillæ; coagulation of the contents of the fibrillæ is the first change visible after the loss of the nerve's irritability, and appears a sure sign of loss of vitality in the nerves. Dr. Stannius admits that the question does not yet

* Mr. Owen, on the Nature of Limbs, a Discourse delivered on Feb. 9, 1849, at the Royal Institution.

seem definitively answered, for the possibility exists that the primitive nerve-fibre, in contact with the muscular fibre, may still preserve its energy, though this much appears certain, that the nerves lose their influence very slowly, and in a centrifugal direction.*

3. *On the Arrangement of the Areolar Sheath of Muscular Fasciculi and its relation to the Tendon.*—It is well known that the fasciculi of fibres of the muscles are surrounded by sheaths of areolar tissue, but the arrangement of the filaments of fibrous tissue forming the sheaths, and their relation with the tendon, has not been properly pointed out. From repeated observation, Dr. Leidy, who has investigated the point, has found that the filaments of fibrous tissue cross each other diagonally around the muscular fasciculi, forming a doubly spiral extensible sheath. None of the filaments run in the direction of the length of the fasciculi, and but few are transverse. Many of the filaments of a sheath form an interlacement in the same diagonal manner with the filaments of the sheaths of neighbouring fasciculi. This arrangement is readily distinguished, if several fasciculi be drawn slightly from each other upon a plate of glass, and the interveniug areolar tissue be viewed beneath the microscope. When the filaments reach the rounded extremities of the fasciculi, they become straight, and in this manner conjoin with the tendinous filaments originating at the extremities of the muscular fibres. The importance of this arrangement can be readily understood; from the diagonally crossing course of the areolar filaments, comparatively inelastie in themselves, the sheath is rendered elastic, thus permitting the muscular fibres freely to move without their action being interfered with, while at the point of attachment of the fasciculi, where any elasticity would be worse than useless, from the fact that part of the muscular action would be lost in the mere extension of an elastic substance, we find the filaments arrange themselves so as to become part of the inextensible tendon.

4. *On the Minute Structure and Mode of Contraction of Muscular Fibre.*—Mr. Dobie has recently presented a paper to the Edinburgh Royal Medical Society on this subject. After reviewing the opinions of the principal microscopic anatomists of earlier and more recent date, among whom are Lewenhoeck, Malpighi, Muys, Prochaska, Bauer, Home, Martin, Barry, and Bowman, he adverts to his own views, deduced from numerous demonstrations of recent muscular fibre. Without following the author through his entire description, we may give the following summary of his observations:

1st. That (excluding the sarcolemma) an ultimate fibre of voluntary muscle is composed of two kinds of sarcous matter arrauged in a definite way, having a tendeucy to split up into fibrillæ or discs. These fibrillæ have dark and light spaces.

2d. That the dark sarcal element or space has some peculiarity in its molecular arrangement, differing from the clear sarcal clement or space which causes it to refract light in a different way. But we are not entitled to say that it is composed of cells containing a fluid of greater density than is contained in the contiguous clear space; in fact, we are not able to say, with any degree of certainty, that any portion of a muscular fibril in the mature state is a cell coutaining fluid, as Mr. Erasmus Wilson believes.

3d. That the clear space can be distinctly seen to have a dark line crossing it transversely, and dividiug it into two equal parts; and that the dark space also presents a similar division, caused by a line which is generally seen of a lighter shade than the other parts of the same space, and not a broad black band as is erroneously represented by Mr. Erasmus Wilson.

4th. That no clear area exists at the edge of the fibrillæ extending trans-

* Müller's Archiv, p. 440, 1847.

versely outwards from the dark spaces, giving the fibrillæ the appearance of a chain of nucleated cells, as is represented by Dr. Sharpey and Dr. Carpenter. To this conclusion I have been irresistibly led by the following considerations:

a. The fact that when two fibrillæ lie side by side, the edges of the black spaces are in accurate apposition.

b. That if this lateral clear area really existed, the fibre would be spotted, or at least marked with longitudinal striæ quite as distinct as the transverse ones, which in this case would not be well marked.

c. That the edges of the clear space can be seen under a fine instrument not to extend farther laterally than the edges of the dark space.

d. That the cross line in the clear space measures exactly the same as the breadth of the dark space, and that it can be distinctly seen in favorable cases to touch the edges of the clear space.

5th. That it seems probable that there exists a homogeneous connecting medium among the fibrillæ.

6th. That the structure of cross-striated muscular fibre is essentially the same in all the members of the animal kingdom.

7th. That from all I have seen of the structure of voluntary muscle, I am perfectly certain that the appearances presented are quite inconsistent with any *palpable* spiral arrangement, either in the fibre or fibrillæ, as is still the opinion of Dr. Martin Barry. Mr. Bowman's observations ought to have set this point at rest.

8th. That the dark spaces become clear, and clear spaces dark, during a change in the focus of the instrument, causing a peculiar appearance of movement on the fibrillæ.

9th. That the clear spaces are generally narrower in the fish and lobster than in the frog and mammalia.

10th. That the fibrillæ are somewhat flattened bands.

11th. That the dark spaces in some cases appear as if slightly elevated above the clear spaces of a fibril.

Respecting the transverse striæ, the author observes, in reference to the change of appearance induced by change of focus:

"The muscular fibrils being composed of a series of clear and dark particles, which under change of focus alter from dark to clear and from clear to dark, this change also takes place under the same circumstances in the complete fibre, so that the dark transverse striæ are at one time formed by the lateral coaptation of the dark spaces, at another time by a like coaptation of the clear spaces.

"I see no other way of rationally explaining this peculiar appearance of movement on the surface of the fibre during alterations of focus, and I believe that Mr. Erasmus Wilson is wrong in stating that the dark transverse striæ are always formed by the lateral union of the *light* spaces.

"This appearance of movement cannot be caused by dark spaces of fibrillæ lying immediately below the *clear* spaces of a set of fibres which are *superficial* to them. As the movement can be seen in a perfectly fresh and undisturbed fibre, it can also be seen on the individual fibrillæ, as I have already stated."*

5. *Use of the Omo-hyoid Muscle.*—The use generally assigned to the omo-hyoidei muscles is, depressing the larynx after its elevation in the act of swallowing; but the larynx, Mr. Skey says, would return to its position by its own elasticity, and therefore no muscular power is here required. He gives them another office, viz. producing imbibition by suction; they act by drawing the whole larynx forcibly downwards, the larynx rising again after

* Annals of Natural History, Feb. 1849.

cessation of their action. That they are the chief muscles employed in drinking, may be inferred from their absence in all animals that drink by *lapping*, and by their invariable presence in all animals that drink by *suction*. The objection which may be made, that the young of lapping animals live by suction, Mr. Skey answers by saying, that the act of sucking in these animals is effected solely by the tongue itself, closely applied round the nipple. His views are supported, also, by the anatomy of the descendens noni nerves. In animals that do not possess these muscles, the descendens noni nerves are formed chiefly by the cervical nerves; while in those that drink by suction, they are almost entirely composed by the hypoglossal nerves.*

6. *On the Non-vascularity and peculiar Organization of certain Animal Tissues, especially of the Eye and Joints.*—A paper, of which we give a condensed abstract, has been contributed by Mr. Toynbee. In the introduction to this paper, the author first speaks of the process of nutrition in those animal tissues which are pervaded by the ramifications of blood-vessels, pointing out the circumstance that even in them there is a considerable extent of tissue which is nourished without being in contact with vessels. The knowledge of this fact leads to the study of the mode of nutrition in those tissues which contain no blood-vessels; these are divided into the three following classes, viz.:

The *first* comprehends articular cartilage, and the cartilage of the different classes of fibro-cartilage.

The *second* comprises the cornea, the crystalline lens, and the vitreous humour.

The *third* class includes the epidermoid appendages, viz. the epithelium, the epidermis, nails and claws, hoofs, hair and bristles, feathers, horn, and teeth.

The author then proceeds to show that the due action of the organs, into the composition of which these tissues enter, is incompatible with their vascularity. In proof of the non-existence of blood-vessels in these tissues, he states that he has demonstrated, by means of injections, that the arteries, which previous anatomists had supposed to penetrate into their substance, either as serous vessels or as red blood-vessels too minute for injection, actually terminate in veins before reaching them; he also shows that around these non-vascular tissues there are numerous vascular convolutions, large dilatations, and intricate plexuses of blood-vessels, the object of which he believes to be to arrest the progress of the blood, and to allow a large quantity of it to circulate slowly around these tissues, so that its nutrient liquor may penetrate into and be diffused through them. The author states that all the non-vascular tissues have an analogous structure, and that they are composed of corpuscles, to which he is induced to ascribe the performance of the very important functions in the process of their nutrition, of circulating throughout, and perhaps of changing the nature of the nutrient fluid which is brought by blood-vessels to their circumference. The author then brings forward facts in proof of the active and vital properties of these corpuscles, and concludes his introduction by stating, that it appears to him that the only difference in the mode of nutrition of the tissues which contain blood-vessels and those which do not, is, that in the *former* the fluid which nourishes them is derived from the blood that circulates throughout the capillaries contained in their substance; whilst, in the *latter*, the nutrient fluid exudes into them from the large and dilated vessels that are distributed around them; and that, in both classes, the particles of which the tissues are composed derive from this fluid the elements which nourish them.

The author then enters on an examination of the structure and mode of nutrition of the several tissues of each of these three classes.

* Medical Gazette, July 7, 1848.

Of the joints.—In considering the first class, the development of articular cartilage is described at great length during its various stages, and at the different periods of life. Numerous dissections of the ovum and fœtus are given in detail to illustrate the *first stage*, during which it is shown that no vessels enter into the substance of any of the textures composing a joint, but that the changes they undergo are effected by the nutrient fluid from the large blood-vessels, by which each articulation is surrounded. In the *second stage* of the development of articular cartilage, it is shown that the epiphysal cartilage is gradually hollowed into canals, within which blood-vessels are extended, which converge towards the attached surface of the articular cartilage: in this stage vessels are also prolonged over a considerable portion of the free surface of the cartilage between it and the synovial membrane.

In the *third stage*, that which is exhibited in adult life, the epiphysal cartilage is converted into osseous cancelli. These contain large and very numerous blood-vessels, ramifying throughout the whole of their cavity, and are separated from the articular cartilage by a very fine but complete lamina of bone, the articular lamella, which is composed of corpuscles; and the author believes that the principal source of nutrition to the articular cartilage is the nutrient fluid eliminated by the large vessels of the cancelli, and which permeates the articular lamella. The free surface of adult articular cartilage is nourished by vessels which extend to a short distance over its margin, and between it and the synovial membrane.*

A vertical section of the Inferior Extremity of the Os Femoris, highly magnified.

Fig 1.

A. The impervious layer of bone (articular lamella) to which the cartilage is attached, separating the latter from the cancelli.

B. The firm vertical fibres of the cancelli implanted into the upper surface of the articular lamella.

A section of part of the Inferior Extremity of the Os Femoris, forming part of the Knee-joint, showing the relation of the Blood-vessels of a Bone to the Articular Cartilage covering it.

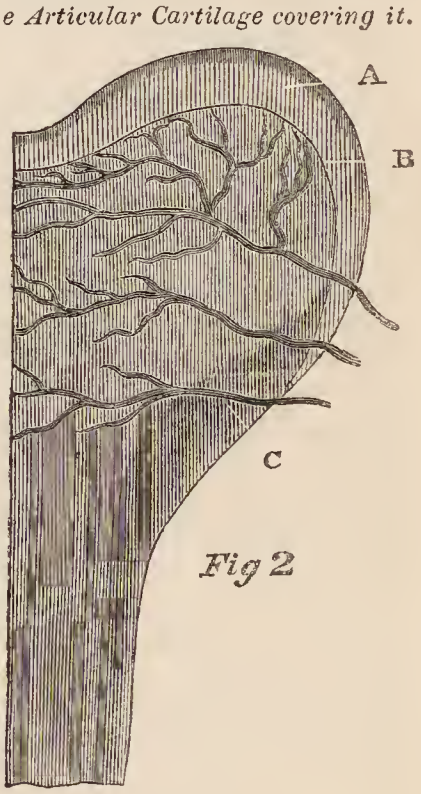


Fig 2

A. The articular cartilage.
B. The articular lamella.
C. The blood-vessels of the cancelli.

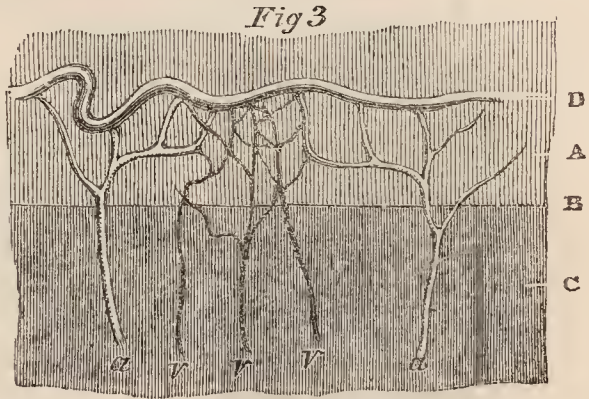
It is quite certain that the vessels thus situated do not enter the substance of the articular cartilage, inasmuch as the arteries terminate in veins at the circumference of the latter. In this situation the arteries become continuous

* It is very probable that synovia, a highly animalized fluid, has some share in the nutrition of articular cartilages, especially as it appears that false cartilages of joints, without having any attachment to the synovial membrane, are developed and grow floating in it.

with the veins in the following ways:—Firstly, by their all ending in a single vessel similar to the terminal sinus in the vascular area of the chick, from which the veins arise; secondly, the arteries terminate in dilated cavities, which give origin to veins; and lastly, the two sets of vessels are directly continuous by means of loops of various characters. The apparent object of all these modifications is to cause a considerable quantity of blood to circulate slowly in the vicinity of articular cartilage.

Vessels situated between the Synovial Membrane and the border of the Articular Cartilage of the Condyle of the Os Femoris at the Period of Birth.

Fig 3



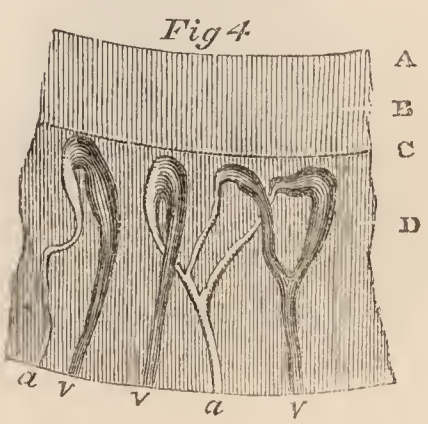
A. The articular cartilage.
B. Its margin.
C. The synovial membrane.
D. The single vessel in which the arteries terminate.
a. Artery.
v. Vein.

The author points out the presence of fine tubes which pervade the attached portion of articular cartilage: to these he ascribes the functions of transmitting through its substance the nutritive fluid derived from the vessels of the cancelli, and he also shows that articular cartilage becomes thinner as man advances in life, and that this change is effected by its gradual conversion into bone, a process which is always going on.

Fibro-cartilages constitute the second tissue of the first class: they are divided by the author into two classes: one comprising those which are no covered by a synovial membrane; the other includes those which have each surface lined by it. The structure of fibro-cartilage is carefully investigated, and in order to arrive at some definite conclusions on this subject, whereon anatomists of all ages have so much differed, he made numerous dissections of fibro-cartilages in the different classes of animals at various periods of their development, the results of which he details. He shows that this tissue is composed of cartilaginous corpuscles and of fibres; the latter preponderating in adult life, the former in infancy; and that during life the corpuscles are gradually converted into fibres. He enters at length into the question of the vascularity of these cartilages; and from a careful study of many injected specimens of man and animals at various periods of their development, the particular results of which he relates, he states that blood-vessels are contained only in their fibrous portion: these have the function of nourishing the part that is cartilaginous, which, being subject to compression and concussion, does not contain any.

A portion of the Internal Semilunar Fibro-cartilage of the Knee-joint.

Fig 4



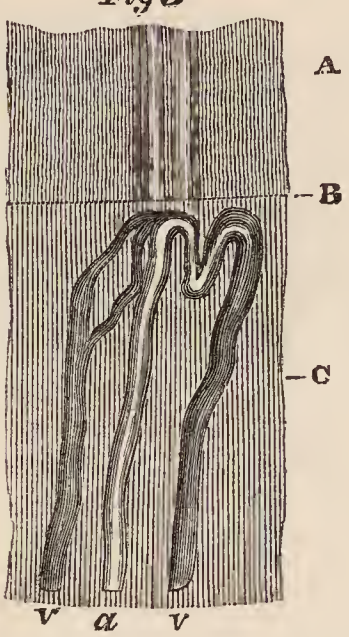
A. The free internal border of the fibro-cartilage.
B. The true cartilage.
C. The line of separation between the cartilage and the fibro-cartilage.
D. The fibro-cartilaginous portion.
a. The artery.
v. The vein.

The eye.—The cornea, crystalline lens, and vitreous humour, each forming a part of the eyeball, are included in the second class of extra-vascular tissues.

1st. The structure of the *cornea* is described as being very lax, and containing corpuscles only in a small quantity, mixed with bright fibres. The opinions in favour of its vascularity are combated, and it is shown that the blood-vessels which converge towards its circumference are disposed in two different ways.

*Represents the Vessels (Sclerotico-corneal) situated in the substance of the Sclerotic Membrane, which approach the border of the Cornea.**

Fig 5



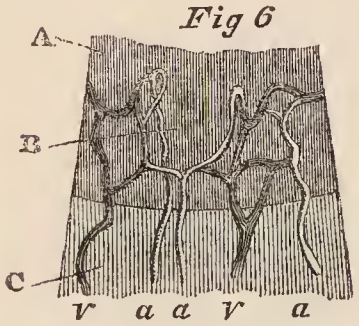
A. The cornea.
B. The line of separation between the cornea and the sclerotic.
C. The sclerotic.
a. Artery.
v. Vein.

Those which are the principal source of the fluid that nourishes it, and which from their position may be styled the sclerotico-corneal arteries, are large and numerous; they are situated in the substance of the sclerotic, and they converge to the point where this latter structure joins the cornea, in which position, without much diminution in their size, they suddenly become contiguous with the veins that take a retrograde course. (See fig. 5.)

A second set, the conjunctivo-corneal arteries, pass over a small extent of the surface of the cornea, where they form a narrow band: the arteries terminate by forming loops with the veins, and do not penetrate the substance of the cornea.

Represents the Vessels (Conjunctivo-corneal) which pass to a certain extent over the surface of the Cornea, between it and the Conjunctiva.

Fig 6



A. The cornea.
B. The conjunctivo-corneal vessels.
C. The sclerotic.
a. Artery.
v. Vein.

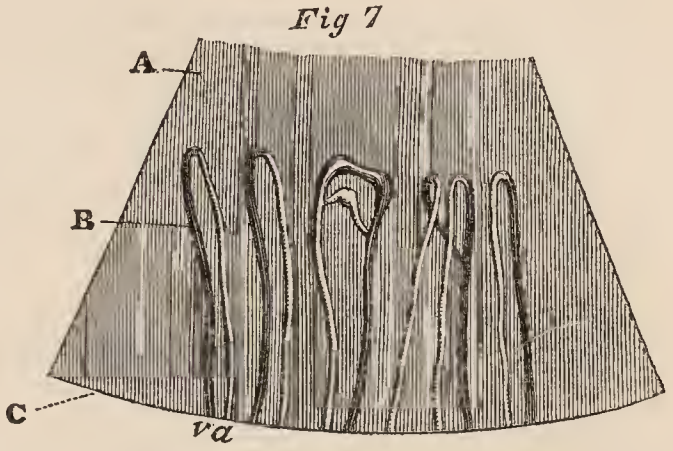
2d. The *crystalline lens* is described as being composed of corpuscles, of which the radiating fibres are constituted. The arteria centralis retinæ is the

* These are the vessels that become so much enlarged in certain diseases of the eye.

source of nutrition to this organ; it ramifies over the posterior surface of the capsule in the form of large branches; these pass round the circumferenee, upon the periphery of which they become straight, and terminate by forming loops with thc venous radicles.

Represents the mode in which the Blood-vessels are distributed that nourish the Crystalline Lens. Human Fœtus.

Fig 7



A. The anterior surface of the lens.
B. Terminal branches of the arteria centralis retinæ.
C. The circumference of the lens.
a. Artery.
v. Vein.

3d. The *vitreous humour* does not present any traces of vascularity, and although many anatomists have in general terms represented the arteria centralis retinæ as giving off in its course through the organ minute branches into its substance, still those who have paid especial attention to this subject have not been able to find such vessels. The author believes that the nutrition of this structure is accomplished by the vascular ciliary processes of the choroid, and that the fluid brought by the latter is diffused through its substance by means of the corpuscles of which its membrane is composed, assisted by the semi-fluid character of the humour.

Of the skin, &c.—The third class of extra-vascular tissues comprehends the epidermoid appendages. The author describes them all as composed of corpuscles, which are round and soft where they are in contact with the vascular chorion, compressed and flattened where they are farther removed from it. He points out, in the substance of the hoof of the horse, the existence of fine canals, which he supposes to conduct fluid through its mass; and he states that the perspiratory ducts of the human subject possess a structure analogous to the spiral vessels of plants. The author describes each of the tissues of this class, and shows that the various modifications presented by the vascular system with which each is in contact have the sole object of enabling a large quantity of blood to approach and circulate slowly around them. He also points out, in connexion with this subject, the remarkable vital properties which are possessed by these non-vascular tissues.

The conclusions to which the author of this paper arrives are the following:

1st. The articular cartilage of joints in a healthy state contains no blood-vessels, and that it is nourished by the vessels which surround it; in certain diseases of the joints these vessels are prolonged into the substance of articular cartilage.

2d. The fibro-cartilages of the joints and of the spine when healthy contain blood-vessels only at their circumference; in disease they become vascular.

3d. That the following structures of the eye, viz. the cornea, the crystalline lens, and the vitreous humour, possess no blood-vessels in a healthy state; in some diseases of the eye the cornea becomes vascular.

4th. The epidermis of the skin, teeth, nails, feathers, and the hoofs of

animals have no blood-vessels. The hoof of the horse is pervaded by numerous fine canals, which circulate a fluid throughout the whole of the substance, and give to it the elasticity so essential to the due performance of its functions.

The author states that his object has been to establish as a law in animal physiology, *that organs are capable of being nourished, and of increasing in size, without the presence of blood-vessels in their substance.*

The application of the above-named law to the study of *surgery*, in reference to the causes of the extension of vessels into the extra-vascular tissues of the eye and the joints, when in a diseased state, and to the measures to be adopted for the prevention and cure of those affections which are dependent thereon, and to *pathology*, in the investigation of the nature of morbid structures, particularly of those classes which contain no blood-vessels, will, the author feels certain, be productive of scientific interest and of practical advantage.*

7. *Structure of the Synovial Membrane covering the surface of Adult Articular Cartilage.*—The same observer, after alluding to the disputed point of vascularity or non-vascularity of articular cartilage, refers to the above paper in which he endeavoured to prove that this structure should be classed among those animal tissues which are nourished, and are liable to disease, though deprived of blood-vessels. He alludes also to the difference of opinion respecting the persistence of the synovial membrane over the surface of adult articular cartilage, and inquires what has become of it, since its presence in the fœtus is readily ascertained. His investigations lead him to an opinion confirmatory of that advocated by Sir B. Brodie, that the synovial membrane invests the entire surface at all periods of life, so long as the cartilage is in a healthy state. The methods by which its presence can be demonstrated are the following: "If the synovial membrane which surrounds the border of adult articular cartilage be traced to the margin of the latter, it will be found to adhere very firmly, and should an attempt be made to tear it from the surface of the cartilage, it will often give way; in some parts, however, and that not unfrequently, a continuation of this synovial membrane will be separated by laceration in the form of a thin transparent layer, from the surface of the cartilage to the extent of several lines. Another mode of showing the presence of this delicate tissue on the surface of articular cartilage is, to make a very thin flap of the latter parallel with its surface, and then, by means of a pair of broad-pointed forceps, to draw it gently but firmly in the same direction as that of the section. As a general result of this process, it will be found that a layer of transparent membrane, varying from two lines to half an inch in length, will peel from the cartilage. A third way of demonstrating the existence of this membrane is to place a portion of articular cartilage under water, and to scratch its surface with the sharp point of a firm needle, till a fine membrane is observed to be lacerated, under which the needle may be introduced, and by careful manipulation, the adhesions between it and the cartilage may be broken and considerable portions detached." In reference to the *structure* of this membrane, Mr. Toynbee says: "When examined by a magnifying power of 500 diameters, portions which have not been subject to much pressure present the appearance of compressed areolar tissue; portions from the central part of the cartilage are translucent, and have a nearly homogeneous structure; they present on their inner surface numerous fine points, which appear to be particles of cellular tissue, which have been lacerated in the process of separation from the cartilage; sometimes the inner surface of this membrane presents shallow depressions, which correspond in

* London Journal of Medicine, March 1849.

size and shape with the corpuseles of artieular eartilage over whieh they have been plaeed and against whieh they have been firmly compressed; not unfrequently some cartilage-cells are seen adherent to the inner surfaee of the membrane." Mr. Toynbee adds, "That this membrane *is not a layer of cartilage* seems evident from the fact that it contains no eorpuseles; from its extreme and yet uniform softness and tenuity, the latter being so great that the membrane folds upon itself when floating in a drop or two of water; from the facility with whieh it is separated from the surface of the cartilage without using any eutting instrument; and from the eircumstanee that it is visibly eontinuous with the synovial membrane around the joint. The only fact which seems to militate against its being eonsidered as synovial membrane is the absence from its surface of epithelial eells. The absence of the epithelial layer may, however, be aceounted for, perhaps, from the fact, that it is not, like the reflex synovial membrane, a seereting organ, and from its being subjeeted to great pressure."

8. *On the Development of the Purkinjean Corpuscle in Bone.*—Schwann, in his 'Mikroskopische Untersuchungen,' considers that the Purkinjean eorpusele of bone is derived from the pre-existing cartilage-cell, and that the eanaliculi are prolongations, or protrusions of the cell-wall. Many later authors, among whom are Gerber, and Todd and Bowman, express the opinion that it originates in the nueleus of the temporary cartilage-cell, and Tomes entertains the idea, that after the formation of the osseous tubes, in the process of ossifieation, the latter are filled up by a deposit of osseous granules, and while this deposit is going on, small cells are left, which are the rudimentary Purkinjean eorpuscles. Henle thinks them to be the cavities of eells, the thickened walls of which are piereed by the eanaliculi. Hassall confirms the view of Sehwann by stating, "the bone-eells (Purkinjean eorpuseles) are to be regarded as complete eorpuscles, the eanalieuli of which are formed by the extension of the cell-wall, which is proved by watehing the formation and development of bone."

The opinion of Schwann and Hassall Dr. Leidy fully corroborates from his own observations upon an ossifying frontal bone, from a human embryo measuring two inches from heel to vertex. Each lateral half of the bone is about $3\frac{1}{2}$ lines in diameter, and presents to the naked eye the appearance of a delicate and close network, arising from the numerous areola oceupied by temporary cartilage. The frontal and orbital plates, it is worthy of ineidental remark, at this period, are nearly on a plane with each other, or are connected together at a very obtuse angle along a central, transverse, erescentie, raised line, the rudimentary supra-orbitar ridge.

The mode of development of the Purkinjean eorpusele, as notieed upon the upper or posterior border of the os frontis, is briefly as follows. After the primitive ossific rete has been formed from the deposit of the osseous salts, inclosing groups of eartilage-eells in the areola, the further deposit takes place in a fibrous or line-like course from the parietes of the areola of the primitive osseous rete, in the interspaces of the cartilage-cells nearest to or in contact with the sides of the areola. At this period the cells shoot out or extend their canalieuli between the fibrillæ just formed, and then the eell-wall and continuous walls of the eanaliculi fuse with the translueent, homogeneous, or hyaline substance of the cartilage existing between the eells and the osscous fibrillæ, and with the fibrillæ themselves, by the deposit of the osseous salts. The period of the formation of the canalieuli appears to be quite definite, oeurring during the deposit of the osseous salts, and not before. To such an extent is this the ease, that I notieed in several instances

cells which had formed their canaliculi upon the side which was ossified, while upon the other side I could not distinguish any trace of them.

During the whole time of the formation of the Purkinjean corpuscle, the nucleus remains unchanged; at least no change is perceptible in it beneath the microscope, and by applying tincture of iodine to the preparation, which turns the nucleus brown, I was able to detect it within the perfected Purkinjean corpuscle, not only corresponding to the nucleus of the remaining unossified cartilage-cells in granular structure, but also in its measurements. After the Purkinjean corpuscle has been formed a short time, the nucleus dissolves away or disappears.

The newly-formed Purkinjean corpuscle is about the same size as the remaining unossified cartilage-cells.*

§ II.—*The Blood and Circulation.*

9. *The Mechanism by which the Valves of the Heart are closed, and its Sounds produced.*—Dr. Hamernjk, of Prague, confirms in many respects the opinions of Dr. Baumgarten on the mechanism by which the cardiac valves are closed.

The most important of these views are, that during the systole of the auricles there is none or very trifling regurgitation into the venous trunks. This is prevented in his opinion by an arrangement of circular muscular fibres surrounding the embouchure of the veins; by the propulsion of the blood towards the auriculo-ventricular opening, and by the vis a tergo. On the right side, there is the additional agency of a valve at the mouth of the cava, but this is operative only in the fœtal state. He attaches great importance to the force of the current of blood flowing into the venous trunks, due to the alternate pressure exercised by the respiratory movements, reflux being prevented during expiration by the valves in the veins at the base of the neck; and in the vena cava inferior, he attributes a valvular action to the displacement of the liver during expiration, which diminishes the calibre of the vein at its passage through the diaphragm. Dr. Baumgarten considers the pulsatory movements observed in the healthy state of parts in the great veins, to depend on the sudden interruption of the current of blood during the auricular systole.

That the auriculo-ventricular valves are closed by the counter-pressure of the ventricular blood, suddenly developed by the contraction of the *auricles*. That the cavities of the auricles and ventricles, during the heart's diastole, are distended by the continuous current from the veins; while at this period the valves are to be found floating in the blood in the form of a funnel. That the object of the auricular systole is to induce such an amount of tension in the contents of the ventricles, and of course in the blood surrounding the funnel-shaped arrangement of the valves, as to cause their rapid closure; and that in this way only can regurgitation be prevented. If the heart be removed from the body, and the auricles cut away (it is better, however, to operate with one only), the artery obstructed by ligature, or by filling it with wax, and the cavity of the ventricle filled with a saline solution, the valve is found lying in the position above described. If then a stream of water be directed upon the valve from the height of a foot, so as to imitate the sudden contraction of the auricle, the valve is seen to close with great rapidity. If, however, an attempt be made to imitate the ventricular systole, by squeezing the ventricle with the hand, a large portion of its contents regurgitates before closure is effected.

* Transactions of the Academy of Natural Sciences; Philadelphia, 1848.

That the closure is not due to the operation of the musculi papillares, but that it is much facilitated by the small specific gravity of the valves, which enables them to float on the surface of the blood.

Dr. Hamernjk then proceeds to make some remarks, which he considers in part deducible from the preceding.

1st. It is possible that there may occur one or more systoles of the ventricles, unpreceded by any auricular action, forming what is called the " rhythmus intercurrens" of the heart's action. In chronic asthma and pneumonia, the blood, powerfully propelled by the expiratory movements, may distend the auricles to such an extent, that they are unable to contract on their contents. In which circumstances, two or more systoles of the ventricles are required before the auricles can unload themselves.

2d. The division by the older anatomists of the ventricles into portio auricularis and portio arteriosa, is physiologically and pathologically significant. In the former, there is a current of blood until the closing of the auriculo-ventricular valves, continuous with that of the veins. In the latter, a current is established by the ventricular systole, continuous with that of the arteries. Where there is no motion of fluid, there can be no murmur; consequently simple roughness of the mitral valve by exudation, or otherwise, will not give rise to a murmur with the first sound, unless the valve be also insufficient.

3d. The mechanism by which the valves of the arteries are closed, is similar to that of the auriculo-ventricular valves. Immediately on the contraction of the ventricles, the pressure of the blood attained in the large arterial trunks, acting equally in all directions, effects the closure of the semilunar valves. Their complete closure occurs contemporaneously with the end of the ventricular systole. When the ventricular diastole begins, the arterial retraction commences, and the wave of reflux from the large arteries falls upon the valves already closed, and thus is produced the clear second sound. There is no regurgitation, which would necessarily be the case to a certain extent were the valves shut only by the returning wave of blood.

4th. The first sound of the heart is occasioned by the vibration of the tense auriculo-ventricular valves, acted on by the blood propelled against them during the systole of the ventricles, and the vibration of the chordæ tendineæ. In like manner, the second sound is produced by the impulse of the blood on the semilunar valves already shut, and not by their closure.

5th. A double or even a treble sound is sometimes heard over the ventricles, which has been ascribed to various causes, but is probably due to a double vibration of the tense auriculo-ventricular valves—just as a sail struck by the wind may emit several sounds. The same explanation is given when the phenomenon occurs with the second sound.

In contraction of the mitral orifice, there is occasionally heard a peculiar sound termed *cliquetis métallique*, or " audible heart impulse," and of which different explanations have been offered. According to the author's experience, all true heart-sounds are heard by mediate or immediate auscultation only. This sound, however, is heard at a distance from the chest, and is hence presumed by him to depend on the motion imparted by the heart's systole.

6th. Morbid conditions of the muscular parietes of the heart cannot prevent closure of the valves.*

10. *Heart, Irritability of.*—Tiedemann, wishing to test the opinions of Fontana respecting the irritability of the heart, placed the freshly cut-out heart of a frog under the receiver of an air-pump, and withdrew the air; the pulsations of the heart at once became weaker and slower, and in thirty seconds ceased. After an interval of five minutes air was readmitted, and the pulsations again pro-

* Edin. Monthly Journal, from Prager Viertel Jahr., 1847, vol. ii.

ceeded. These alternate experiments were several times repeated, and with the same results. Another heart, suspended in air, continued in uninterrupted motion for an hour. For this cessation of the heart's action in vacuo Tiedemann gives two reasons: 1st, the want of an excitor to contraction, and 2dly, the withdrawal of oxygen, without which the muscles cannot be maintained in the condition necessary for contraction. Under pressure in the air-pump, the heart's action became quicker and stronger; under three atmospheres it beat strongly for twenty minutes, and continued to beat for more than an hour when removed from the air-pump. This increased action he attributes to the increased source of irritation, and to the larger amount of oxygen in the compressed air.*

11. *Circulation in Insects.*—M. E. Blanchard has studied the circulation in all classes of insects; he does not find any essential difference of it in any of them. He shows that the blood penetrates between the two membranes which constitute the trachea, and this is the main discovery of his researches. It has hitherto been thought that the air, as Cuvier remarked, was carried through the body to meet the blood; but, in reality, it is the blood that seeks the air, just as it does in those animals which have a pulmonary respiration. In the one case, the respiratory apparatus is localized; in the other, it is disseminated through all parts of the body; so that the difference is, after all, rather anatomical than physiological. M. Blanchard thus sums up his description: "In all insects there exists a dorsal vessel, which is the centre of the circulation, having a cardiac and an aortic division; the *cardiac* portion is divided into compartments, the number of which varies in different species: these compartments are provided with lateral orifices for the return of the blood; the *aortic* portion is destined to convey the nutritious fluid towards the anterior part of the body. The blood having thus reached the head, spreads through all the inter-organic spaces, and at the same time is diverted into the lacunæ, situated near to the origin of the respiratory tubes, and then penetrates into the membranes of the trachea, which are kept open at their bases by a spiral cord. The fluid thus carried through all the organs of the body, between the two tunics which form the respiratory tubes, is separated from the air only by a single membrane; the trachea, in their periphery, becoming veritable blood-vessels. The blood is returned into the large lacunæ, and from them is returned into the dorsal vessel by efferent canals formed of cellular tissue, and having no membranous walls."†

12. *On the Capillary Circulation.*—In addition to the capillary or intermediary system of vessels at present admitted by anatomists, and which M. Bourgery considers as constituting a mere anastomosis between the arterial and venous radicles, unconnected with the vital changes going on in the tissues, the author describes a circulation of *capilliculi*, forming a diverticulum of the general circulation, and pervading more minutely than the capillaries the ultimate elements of every organ. These he looks upon as the proper and *special organic* circulation, by which in different organs the functional changes of secretion, nutrition, &c., are carried on. The *general* circulation in itself does not produce any functional changes, but merely preserves unbroken, and independent of the activity of the special circulation, the progressive movement of the blood, which at all times passes over in part from the arterial to the venous system, through the capillaries; while the *capilliculi* receive a part of it for elaboration in the special tissues to which they are destined. These capilliculi (the size is not stated) are impervious to all particles which are not in solution; the blood-corpuscles do not pass through them; nevertheless they may

* Müller's Archiv, p. 491, 1847. † Annal. des Sci. Nat., June 1848.

always be traced, varying in disposition according to the organ or tissue in which they are situated. For the most part they are tolerably uniform in size; but they may be observed, on the one hand, to pass into vessels still more minute (not equal to the half, third, or fourth part of the diameter of a blood-corpuscle); and, on the other, into the ultimate lymphatic vessels, which again communicate by innumerable minute passages with the venous system.

M. Bourgery conceives that this scheme of the circulation completes, without abrogating, that of Harvey and the majority of physiologists. On the one hand, it admits a general circulation of the kind described by Harvey, which is permanent and complete in the circle which it describes; on the other, it asserts an extension of this by an infinite number of partial or functional circulations, isolated from each other, but connected by means of the general circulation, and in their united capacity very much exceeding the latter. These partial circulations are special and heterogeneous in their function and distribution, and are only periodically active; the only exception to this being in the lung, where the special may be considered as subserving a mechanico-chemical function; and, being properly a function or complement of the general circulation, is, like it, permanent and complete.*

— Dr. Bennett Dowler has published a pamphlet in which, after criticising the various theories of the capillary circulation, he maintains that of a circulatory power entirely independent of the general circulation. The experiments upon which he bases his opinions are numerous.†

13. *Blood, State of the Fibrin in.*—M. Horn affirms that the fibrin in the blood is united to the corpuscles, and not free; his proofs are, that when frog's blood is filtered, the fibrin appears in the form of flocculi, or thready coagula, and the microscope shows that these are formed out of the granules which are met with in the blood, and have the characters of fibrin: moreover, when the fibrin is carefully removed by beating, these corpuscles can no longer be found. The fibrinous corpuscles are formed from the colourless molecules, found so abundantly in the lacteals and lymphatics. M. Horn believes that these molecules by aggregation produce true lymph-corpuscles, which, indeed, in their earliest stage, appear like conglomerates of extremely little molecules. The molecules dissolve away as the corpuscles progress, the corpuscles become flattened and smooth, and are lastly converted into blood-corpuscles. M. Horn considers, also, that pus-corpuscles are nothing but aggregations of these molecules; just as in the normal state the fibrin is converted into globulin, so in pathological conditions it is changed into pyin.‡

14. *Blood, Venous and Arterial Difference.*—According to Béclard, venous blood differs from arterial, in containing less globules and more fibrin. The blood in the arteries everywhere presents the same sensible characters; not so the blood in the veins. The blood in the splenic vein constantly contains less globules than any other venous blood in the system, and the spleen seems to be the organ of destruction of the blood-globules. The blood in the vena porta, before its junction with the splenic vein, varies much in its composition. At the commencement of digestion the globules are considerably diminished, and the albumen increased; but when digestion is completed, the globules are augmented, and the albumen normal in quantity; the globules, therefore, seem formed in the vena porta. Thus, in the same system the globules are formed and destroyed; the mesenteric branch of the vena porta continually supplies new globules to the liver; and the splenic branch as con-

* Comptes Rendus, Sept. 4, 1848; and Edin. Monthly Journal.

† Researches, Experimental and Critical, on the Capillary Circulation.

‡ Schmidt's Jahr., Band viii, p. 147, 1848.

tinually casts into the same vein traces of those which have ceased to exist. The physical properties of the fibrin of the blood in the vena porta and splenic vein differ also from the fibrin in the general venous circulation.*

15. *On the Changes which the Blood Corpuscles undergo in the Spleen.*—Dr. Ecker, of Basle, and Professor Kölliker have simultaneously been engaged in investigations on the nature of the cells which occur in the spleen of various animals, and which contain blood-corpuscles and yellow granules. Repeated observations convinced Dr. Ecker that the occurrence of these bodies was perfectly normal; and further, that the blood-corpuscles in the spleen undergo a normal disintegration. He found in the spleen of rabbits, dogs, sheep, and calves, besides the known cells and nuclei, other cells inclosing blood-corpuscles. Thus, for instance, in the calf, cells were observed of about 0·007 millim., containing *one* blood-corpuscle, and a perfectly pale and finely granular mass. On the addition of water the cell burst, the blood-corpuscle escaped, and, after growing paler, disappeared. Other cells (of about 0·010 millim.) contained *two* blood-corpuscles, and besides these, some also contained a granular nucleus, exhibiting a perfect resemblance to the ordinary cells of the spleen; whilst others again inclosed only a fine granular mass, but no nucleus. Other cells contained *three* or *four*, or sometimes even *ten*, or more blood-corpuscles, of about 0·015 to 0·030 millim. The form of these cells is sometimes round, sometimes irregular; they sometimes contain a nucleus, sometimes not; the cellular membrane is generally very distinct. In some cells, instead of blood-corpuscles, there are only yellow, or brown, or blackish granules, which, as is evident from the stages of transition, are owing to a disintegration of the blood-corpuscles. Thus we find large cells (0·030 millim.) filled with shrivelled, yellow blood-corpuscles, which do not change in water, and are filled with yellow granules. In the free blood-corpuscles numerous transitions from the normal to the shrivelled state are observed, and nowhere are more important differences in the size of the blood-corpuscles exhibited than in those of the spleen. An investigation into the nature of the blood-corpuscles in the spleen of frogs and tritons, showed Dr. Ecker the occurrence of precisely similar changes, and in speaking of the signification of these alterations, he adduces two hypotheses, which had at first sight appeared to him to furnish an equally satisfactory elucidation of the subject. 1. That the blood-corpuscles, either singly, or several together, become inclosed in cells, within which they are disintegrated; or already disintegrated blood-corpuscles become inclosed by cells. This fact is not without analogy, since in the brain and the thyroid gland similar changes of the blood occur under different pathological conditions, as in effusions. The destination of these cells is not known with certainty, but as Dr. Ecker found them in the blood of the splenic vein (in a calf), he conjectures that they reach the liver with the portal blood; and that a separation of the blood which has lost its vitality is effected in some way by the bile. 2. The second hypothesis, the validity of which Dr. Ecker has, however, found reason to doubt since his investigations have been solely directed to the changes observed in the spleen of mammalia, was as follows: that the cells which inclose one or more blood-corpuscles are converted into lymph-corpuscles, the lymph being changed by the addition of blood-constituents. The red colour of splenic lymph appeared at first sight to corroborate this view, but subsequent investigations showed that no such bodies were to be found in the splenic lymph of a calf. It would appear that the separation which occurs in the vesicles of the spleen, serves the same end as the vesicles of the other blood-preparing glands. Kölliker has ex-

* Gaz. Méd. de Paris, Jan. 22, 1848.

tended his observations on these changes of the blood-corpuscles to so large a number of the classes of vertebrata, that we may consider them as of general occurrence in all these animals.*

16. *On the Blood of the Splenic Veins and of the Vena Portæ.*—After long reflection upon the functions of the spleen, it occurred to M. Béclard, that an examination of the blood in the splenic veins might throw light upon this; and, in a letter addressed to M. Dumas, he furnishes an account of the results invariably arrived at in eight experiments performed on dogs.

1st. The blood returning by the splenic vein, prior to its junction with the vena portæ and veins of the stomach, contains a smaller proportion of globules than arterial or even venous blood in general. 2d. The quantity of albumen is proportionably increased—and, indeed, the disappearance of the globules can be conceived of with difficulty, without their principal constituent element being thus found to be present. 3d. I have sought for the constant source of the renewal of the globules, which appeared to be thus incessantly destroyed in the spleen. I first thought of the lungs, and, as all the blood of the organism traverses them, the entire question resolves itself into this—whether a notable difference exists between arterial and venous blood, in respect to amount of globules. A larger proportion does exist in arterial blood, but to so slight an extent as to be explicable by other causes; so that I abandoned the idea of the lungs being the exclusive organ for the formation of globules. 4th. The arterial blood examined at different points of the circulation, is found to present an identical composition in the same animal; while the venous blood differs in respect to its proportion of elements, according as it is examined in different regions. The blood of the splenic veins is an example; but to my surprise I found that the amount of globules in that of the vena portæ, prior to its junction with these, so far from being diminished, was considerably increased; and so abundant is the supply of globules thus brought from its radicles to its trunk, that intestinal absorption at once presents itself as an explanation of the accumulation. The following table exhibits the differences as observed in four successive bleedings performed on the same dog:

	Ext. Jugular.	Mammary Artery.	Splenic Vein.	Vena Portæ.
Water . . .	778·9	750·6	746·3	702·3
Albumen . . .	79·4	89·5	124·4	70·6
Globules and Fibrine.	141·72	159·9	128·9	227·1†

At the sitting of the Académie des Sciences, Jan. 17, 1848, M. Béclard made an additional communication upon this subject, and after referring to the above experiments, added, that he had since made thirty-six comparative analyses between the blood of the splenic and the external jugular veins; selecting the latter as the most convenient representative of the mean composition of venous blood. These also showed a less proportion of globules, a larger proportion of albumen, and a somewhat larger one of fibrine, in the blood returning from the spleen. "So that the spleen, so far from being an organ for the formation of globules, would appear to be the place of their destruction." To prevent error, the blood of the vena portæ was examined in its intestinal branch (sup. mesenteric), and the proportion of its elements was found to undergo an extensive variation. Thus, 1st, during the early period of the digestive absorption, the quantity of albumen is considerably

* Brit. and For. Medico-Chirurg. Rev., July 1848, from Henle und Pfeuffer's Zeitschrift, Band vi, Heft. 2.

† Annales de Chimie et de Physique, 1847, tom. xxi, pp. 506-8.

increased; and 2d, the same occurs at a later period with respect to the globules; while, 3d, if the animal has been subjected to long abstinence, the proportion of constituents is the same as that found in the general venous system. "It results from these experiments on the blood of the vena portæ, that the globules commence and finish in the same system. While, in fact, the intestinal branch of the vena portæ brings the new globules to the common trunk, the splenic branch transmits to it the vestiges of those which have been destroyed in its interior. The blood of the vena portæ not containing a larger proportion of fatty matters than the venous blood in general, and chyle differing from lymph especially by the presence of fatty matters, it is, if not demonstrated, at least very probable, that albuminoid matters enter the blood by one sole channel, the vena portæ. On the other hand, these same matters enter the blood under one form alone, that of albumen. Finally, as the transformation of albumen into globules takes place in the vena portæ, and this only some hours after the commencement of digestive absorption, it results that the blood circulating in the portal system is not subjected to the general laws of the circulation. I shall examine this important physiological point in my next memoir."*

17. *Blood, Normal Presence of Lead and Copper in.*—A reference to 'Abstract,' Vol. II, p. 417, and Vol. VII, p. 348, will afford the earlier investigations of Devergie, Boutigny, and others, on this point. More recently copper has been found in the blood by M. Deschamps† and Dr. Harless,‡ and both copper and lead by M. Millon.§

— M. Melsens, on the other hand, denies the fact *in toto*, and affirms that the lead and copper must have been derived from the tests.‖

§ III.—*Anatomy and Physiology of the Nervous System.*

18. *Ganglionic System of Nerves.*—We have received the third part of an elaborate essay, by Dr. Radclyffe Hall, on the anatomy and physiology of the sympathetic system. It is too extended for satisfactory analysis in the present Report, but we strongly recommend it to the attention of both the physiologist and physician.¶

19. *Nerves of the Tongue.*—M. Bourgery has contributed an important memoir, in which he describes the ultimate ramifications of the nerves of the tongue. The nerves which supply this organ are—1st, the ninth or hypoglossal; 2d, the lingual division of the trifacial; 3d, the lingual portion of the glosso-pharyngeal; 4th, the chorda tympani; 5th, another branch of the facial which unites with the glosso-pharyngeal; 6th, a branch of the superior laryngeal; 7th, nerves from the carotid plexus. These nerves are subsequently classed according to the regions to which they are distributed; after which they are separately noticed in the following order:

1st. *The hypoglossal nerve.*—After giving off the descendens noni branch, this nerve forms a plexus at the base of the tongue on the external surface of the hyo-glossus muscle, with filaments from the lingual and from the sympathetic plexus accompanying the arteries; and these plexuses are repeated on all planes, in the substance of the organ. By the aid of the microscope, M. Bourgery states, he has recognised, *first*, their junction by ganglionic filaments with the plexus accompanying the lingual artery; and *second*, the

* Brit. and For. Med.-Chirurg. Review, July 1848, from Comptes Rendus, tom. xxvi.
† Comptes Rendus, Feb. 1848. ‡ Müller's Archives, 1847, p. 149.
§ Comptes Rendus, Jan. 1848. ‖ Annales de Chimie et de Physique, July 1848.
¶ On the Ganglionic System of Nerves, by Dr. Radclyffe Hall.

origin, from the anastomosing arches, of numerous filaments distributed to the muscular structure, and beneath the mucous membrane; the cerebro-spinal nerves, hypoglossal and lingual, being respeetively motor and sensory, and the sympathetic filaments presiding over the nutritive functions. Besides the plexus on the hyo-glossus muscle, the following have been observed, formed by the hypoglossal and lingual nerves: 1st, in the genio-glossi museles; and 2d, at the extremities of the stylo-glossi. To these may be added, 3d, a plexus formed by the hypoglossal and glosso-pharyngeal, in the external portion of the stylo-glossus muscle; and 4th, a plexus in the glosso-pharyngeus muscles, formed by the glosso-pharyngeal nerve and the pneumogastric. These are exclusive of the minute plexuses, which may be discovered, by the aid of the mieroseope, in every part of the tongue.

The *lingual nerve* has a less extent of distribution than the hypoglossal, but is more bulky, in accordance with the common character of the nerves of sensation to be larger in size, but with a less surface of distribution, than those of motion. It is with the internal branehes of this nerve that the hypoglossal forms plexuses on the genio-glossal and stylo-glossal museles, at the base of the tongue. The *plexus in the genio-glossal muscles* is remarkable for the abundance and extent of its anastomosing filaments. It is composed of—1st, nerves from the sympathetie plexus, surrounding the lingual artery; 2d, the hypoglossal nerve, which here divides into a plexus, formed by eight or ten principal branches, conneeted by numerous smaller filaments; 3d, the lingual nerve, similarly divided, but of a less plexiform appearance. The plexuses are connected on the two sides, and in front they are eontinuous with those of the stylo-glossi muscles.

Having been thus distributed throughout the tongue in a series of minute plexuses, the hypoglossal and lingual nerves have each their respective final arrangement; the greater portion of the former supplying the muscles, and the latter, for the most part, the mucous membrane.

The following nerves are distributed exclusively to the mueous membrane of the tongue:—The lingual portion of the *glosso-pharyngeal nerve*, the most important of those which are exelusively distributed to the mucous membrane, is divided into an internal and external branch. The internal, the larger branch, is distributed to the parts at the base of the tongue, and supplies exelusivcly the *papillæ caliciformes.* The external branch, according to M. Bourgery, may be followed with the microscope as far as the point of the tongue. Posteriorly, it forms a plexus with filaments from the internal branch; and from this, aeeording to Valentin, is derived the portion which is distributed to the mueous membrane of the inferior surface of the tongue. Its dorsal branch, the eontinuation of this portion of the nerve, passes forward parallel to the principal lines of the fungiform papillæ, and expands towards the point of the tongue, where these papillæ abound; henee it would appear to be intended for their supply, but this M. Bourgery eannot positively assert.

The *chorda tympani* is intimately united in man with the lingual nerve; but its distribution has been followed in some animals, in whieh it is separate, and found to be dirccted to the dorsal surfaee of the tongue, to be distributed to the tegumentary membrane. Its funetion does not appear to have been determined; MM. Bernard and Guarini considering it to be a nerve of motion, while, according to MM. Biffi and Morganti, it is a nerve of sensation. This point ean only be determined by examining into its real origin.

Another *branch of the facial*, deseribed sueeessively by MM. Riehet, Ludovie Hirsehfeld, and Gros, is given off in the aqueduet of Fallopius, below

the origin of the chorda tympani, and is united with the antero-external branch of the glosso-pharyngeal, with which it forms a plexus around and within the stylo-pharyngeus muscle. It is distributed, with the glosso-pharyngeal, to the mucous membrane, and appears to be a motor nerve.

The *superior laryngeal nerve* of the pneumogastric, according to MM. Cruveilhier and Richet, gives a branch which enters the tongue beneath the internal branch of the glosso-pharyngeal, and is distributed to the mucous membrane as far as near the lingual V.

The *sympathetic nerves*, accompanying the arteries, form numerous anastomoses at all points with the other nerves of the tongue.

Deferring the consideration of the ultimate distribution of the nerves in the papillary membrane to a future part of his memoir, M. Bourgery gives the following *résumé* of the respective functions of the nerves.

The tongue receives for each of its halves—

1st. *Two, or perhaps three, motor nerves:* (*a*) The *hypoglossal*, a large nerve in proportion to the size of the organ: (*b*) A branch from the facial, presumed to be motor, and anastomosing with the glosso-pharyngeal: (*c*) The *chorda tympani*, supposed by some to be a nerve of motion, by others of sensation.

2d. A portion of three *mixed or sensory nerves*, derived from the medulla oblongata: (*a*) The *glosso-pharyngeal*, for the most part a nerve of special sensation, and by which the tongue is placed in relation with the pharynx, fauces, and velum palati: (*b*) The *lingual*, considered by some as the nerve of taste, by others as merely a nerve of sensation; but, at all events, a large branch of the trifacial, the sensory nerve of the fauces: (*c*) A large branch from the pneumogastric.

3d. The tongue is richly supplied, in proportion to its size, with *sympathetic nervous plexuses*, accompanying the arteries.

The following is a summary of the manner in which the nerves of the tongue are united with each other:—1st, the two nerves of sensation; 2d, each of these with the nerves of motion; the lingual with the hypoglossal and chorda tympani, if the latter be a motor nerve: the glosso-pharyngeal with the other branch of the facial, and with the hypoglossal in the stylo-glossus muscle; 3d, the motor and sensory nerves with the plexuses of the sympathetic; 4th, the three kinds of nerves on one side are united to those of the other.

The tongue is placed in functional relation—1st, with the motor powers of the "hyo-glosso-pharyngeal apparatus" by the hypoglossal nerves; 2d, with the rest of the pharynx, by the glosso-pharyngeal and pneumogastric nerves; 3d, with the face, by the facial and trifacial nerves; 4th, with the digestive apparatus, by the sympathetic plexuses, and the pneumogastric nerves.*

— Dr. Stannius experimented on these nerves, to ascertain their function. When the hypoglossal nerve was seized by the forceps, the animal showed signs of pain; loss of movement followed division of both hypoglossal nerves, the animal could not protrude its tongue, and when it was drawn out, it could not retract it; left between the teeth, it was bitten, to the great pain of the animal; but neither taste nor sensation were lost. When the lingual branch of the fifth was touched, great signs of suffering were shown; and, when cut, loss of sensation followed: the tongue could be pinched, torn, or cut, without any symptoms of pain appearing; yet the animals could move it in every direction, but without control, and they seemed to protrude it like a foreign body from the mouth; their taste also remained uninjured, bitter substances producing the usual signs of disgust, foaming, and flow of saliva, often indeed

* Edin. Monthly Journal, March 1849; from Gazette Médicale.

more so than in uninjured animals. Complete loss of motion and sensation followed division of both hypoglossal and lingual branches of the fifth nerves, but taste remained perfect. When the glosso-pharyngeal nerve was torn, the cats showed clear signs of pain; but it is difficult to say, whether the pain was excited by direct injury of the nerve, or by disturbance of the neighbouring parts. When both glosso-pharyngeal nerves were completely torn out from their roots, the movements of the tongue were in no way affected, and sensation still remained; but the sense of taste was lost—bitters on the tongue produced no loathing, and cats drank milk with quinine, and pure milk indifferently. Dr. Stannius's experiments fully agree with those of Panniza and Pappenheim. Biffi and Morganti's experiments seem to show that the glosso-pharyngeal nerve is not the exclusive nerve of taste; and that on the fore part of the tongue taste depends on the lingual branch of the fifth. A very simple experiment will show that the palatine branches of the fifth are endowed with taste; when powdered quassia on the wet end of a finger is rubbed on the soft palate, a sense of bitterness immediately follows.*

20. *Glosso-pharyngeal Nerve.*—Drs. Biffi and Morganti have renewed their investigations concerning the function of this nerve. In their former experiments, they could discover no motor-power in it; they said: "Bi convincemmo pienamente che il nervo glosso-faringeo nè richiude in se nessuna fibra motrice, nè primitivamente fornitagli dalle sue radice, e nemmeno datagli da anastamosi, che egli faccia con attri nervi."† They *now* state that this nerve does contain motor fibres in its roots. Experimenters on these nerves are apt to fall in errors, by reason of their rapid loss of excitability; when, through want of skill in the operator, the experiment has been too prolonged, no irritation of these nerves will excite contractions; and often when motion is produced, it is of so weak a character, as readily to be overlooked. Drs. Biffi and Morganti experimented on dogs two or three months old. The skull was rapidly opened, the nerve exposed, and divided within the cranium; irritation of the peripheral portion of the nerve produced contractions of the uvula, the soft palate, and its anterior arches, on the side corresponding to the nerve irritated. These weak and limited contractions were very different from the vigorous movements produced in the whole soft palate and pharynx, by irritation of the roots of the spinal accessory nerve. It is impossible to consider these experiments as decisive. They certainly do not contravene the opinion of Dr. J. Reid as to the *general* function of the glosso-pharyngeal nerve, and the former elaborate experiments of Biffi and Morganti strongly confirm the opinion that the glosso-pharyngeal is sensory, and that through it reflex movements are excited.‡

21. *Spheno-palatine Ganglion.*—M. Gros gives a new description of the spheno-palatine ganglion; it does not, as Meckel supposed, form part of the fifth pair, but is merely annexed thereto, a fact easily demonstrated in the lower animals, and to be observed in man. It is composed of two portions, a free and an attached. The free portion has hitherto entirely escaped the observation of anatomists; it may be called, from its distribution, the orbitar division; the adherent portion is the proper ganglion of Meckel, and is the naso-palatine division. Anatomists have herctofore sacrificed the superior free portion; it affords a number of branches and radiating twigs to the orbit and cavernous sinus; 60 can be counted in a horse, 30 to 40 in ruminants, 10 in monkeys, 15 in man, 7 or 8 in the dog, and 4 or 5 in the rodentia. It is to this portion that the ganglion especially owes its character of individuality and independence. The inferior portion, the proper ganglion of Meckel, furnishes

* Müller's Archiv, p. 132, 1848. † Annal. Universal. di Méd., tom. ii, p. 384, 1843.
‡ Müller's Archiv, p. 357, 1847.

filaments, which unite with the nasal and palatine nerves, and go to the pituitary membrane, and the roof of the palate; outwards, it sends filaments to the internal maxillary artery and its divisions; behind, it receives filaments from the fifth, the vidian nerve, and a number of minute filaments, which establish a free communication with the great sympathetic.*

22. *Interosseous Nerve of the Leg.*—Fibrous membranes were long considered, on the authority of Morgagni and Haller, destitute of nerves; but numerous observers have since shown their presence in the dura mater, and they have there been microscopically demonstrated by Purkinje and Pappenheim. Dr. Halbertsma, at the request of J. Müller, has investigated anew the course of the interosseous nerve of the leg, and confirms the fact above referred to. This nerve arises from the tibial nerve opposite the semilunar cartilages; passing for an inch or two down the posterior surface of the interosseous membrane, it becomes imbedded in its fibres; at the lower fourth it again passes to the posterior surface of the membrane; in the upper half of its course it runs near and parallel to the fibula, but lower down it approaches nearer to the tibia, and at last passes before the posterior tibio-fibular ligament on to the lower surface of tibio-fibular articulation; beyond this, Dr. Halbertsma could not trace it; it appeared to be lost in twigs to the surrounding ligaments. It gives off several branches in its course; it sends off three where it first reaches the membrane, two passing towards the tibia, and one towards the fibula; between the upper and middle third it sends another to the fibula, and a somewhat larger one to the tibia, between the middle and lower third, and another to the tibia, in the lower third, before it enters the articulation; the two last branches are the largest, and Dr. Halbertsma could follow their fine divisions in the periosteum. No artery accompanies the nerve in the interosseous membrane, but vessels are seen near those branches, which reach the periosteum. It diminishes in size as it descends, a proof that it gives off branches. It consists in great part of organic nervous fibres.†

23. *Origin of Nerve-fibres.*—Wagner gives further proof of the correctness of the opinion, that the fibres of the cerebro-spinal and sympathetic systems originate directly from the so-called ganglion, or nerve-corpuscles. Two kinds of these corpuscles are found to exist: *one* large, filled with fine granular matter, held together in a globular form by an albuminous substance, having a vesicular nucleus and nucleolus, and showing a connexion with nerve-fibres; the *other* smaller and unconnected with nerve-fibres. In most cases, when a clear view of the first kind can be obtained, two primitive nerve-fibres may be observed, proceeding from it; near the corpuscles, the fibres are broad, and contain similar granular matter to the corpuscles from whence they spring, but they gradually lose this, and assume the ordinary characters of nerve-fibres. The fibres arising from the smallest of this kind of corpuscles are finer, and more decidedly granular; sometimes, however, fine fibres spring from the larger corpuscles, and broad fibres from the smaller. The sheath of the fibre is distinctly continuous with that of the corpuscle. Wagner, in tracing the relation of the fibres to the corpuscles in ganglia, often observed that one of the fibres proceeding from a corpuscle passed from the ganglion into the trunk of the nerve proceeding towards the nervous centres, while the other joined the nerve proceeding to the periphery. He appeared also to think that all the fibres which entered or departed from the ganglia, became related with nerve-corpuscles as described, rendering it improbable that any multiplication of fibrils ever take place in a ganglion.‡

* Comptes Rendus, p. 247, 1848. † Müller's Archiv, p. 303, 1847.
‡ Medical Gazette, vol. xli, p. 568.

24. *Blood-vessels of Nerves.*—Mr. Swan has described a peculiar arrangement of the blood-vessels of the nerves on the surface of the heart of an ox. The nerves here are very small, in proportion to the part they supply, and their branches also, before they are joined by their respective arteries. The arteries are large in proportion to the quantity of nervous matter the nerves contain; they run along the surface of the nerves, and appear, when empty of blood, as faint transparent lines, and they in all probability are continued to the extremities of the nerves; on each side of the nerves runs a vein, which communicates with one of the veins of a neighbouring nerve. The artery and vein together form the bulk of each nerve. There is an analogy of arrangement, and so perhaps of function, between the ciliary nerves and arteries, and these nerves and arteries.*

25. *Ophthalmic Ganglion.*—Mr. Poland describes this ganglion in the horse. Authors, he says, have given most discrepant opinions concerning it, some have even denied its existence; with due care it may always be found, and Mr. Poland describes the best mode of displaying it. It is placed on the middle division of the inferior branch of the third nerve, close to where the branches to the inferior rectus, and interior rectus are given off; it has a round or oval form (once Mr. Poland found it linear), of the size of a pin's head, and has the appearance of a transparent vesicle; under the microscope it shows a plexus of nerve-fibres and ganglion-corpuscles. It receives a short thick branch from the third nerve, and a long slender one from the nasal branch of the fifth. Three ciliary trunks pass from its anterior border, and, dividing into minute branches, are lost on the cellular envelope of the optic nerve, and then pass forward and enter the sclerotic around the insertion of the optic nerve.†

26. *Nerves of the Cutaneous Surface.*—From observations on numerous patients, M. Beau, of the Hôtel-Dieu, has been led to conclude that the general surface of the body is endowed with two kinds of sensation, viz., a sense of tact, and a sense of pain. His attention was first drawn to the fact by a patient suffering from lead-poisoning, in whom were found complete loss of sense of pain and of tact in the *thigh;* and loss of sense of pain, but not of tact, in all the other parts of the body. Since then he has frequently observed the same phenomena in various other diseases, hysteria, hypochondriasis, &c.‡

27. *Function of the Cerebellum.*—An interesting case of apoplexy of the cerebellum bearing upon this disputed point has been recently brought forward by Mr. Denon. The patient was a man, 52 years of age, whose sight had for some years been much impaired, from an amaurotic affection. The author was first called to attend him in June, 1843, when he was suffering from cephalæa and febrile disturbance. This attack left his sight more impaired. About two years ago, he became unfortunate in business, and from that time his mind was weak and excitable. On the last day of April, 1848, he was seized during the night, with sickness and faintness, and, getting out of bed, fell, as it was thought, in a fainting fit. The author found him in a low, exhausted state, and cold, but complaining of pain, heat, and uneasiness in the back part of his head. The latter symptoms continued for some days. There was no paralysis, but his mind was weaker and more confused than before, and his emotional excitability increased. Early in May, his wife mentioned that he had become subject to a constant desire for sexual intercourse; that his conduct in this respect was very different from what it had been before his late attack. By the advice of the author, he left home for about three

* Medical Gazette, Sept. 1, 1848. † Guy's Hospital Reports, vol. vi, pt. 1.
‡ Archiv. Générales, tom. xvi, p. 130.

weeks, without his wife. On his return, the desire of sexual intercourse was abated, and from this time was gradually lost. There was now observed an unsteadiness of gait, which increased, and for some time before his death was attended by weakness and stiffness of the left leg and foot. On the 6th of Sept. he was seized with an apoplectic attack, and died in less than four hours. After death, the vessels on the surface of the brain were found turgid. The convolutions of the brain were shrunken, deficient in firmness, and of a dingy-yellow colour. The optic nerves, shrunken and of a dingy colour, were, together with the substance of the brain around them, in the cerebral part of their course, softened. The whole region of the meso-cephale had an unhealthy aspect. The interior of the right hemisphere of the cerebellum was a softened, pulpy mass, in the midst of which was an apoplectic clot, of the size of a pullet's egg. The softening extended inwardly, beyond the centre of the median lobe, implicating the fibrous strands of the middle and inferior planes; and outwardly, near to the surface of the hemisphere. The whole arterial system of the brain presented the diseased condition which results from cartilaginous and osseous deposit between the coats of the vessels. This state was remarkably apparent in the vertebral arteries, especially in the cerebellar branch, from which the hemorrhage appeared to have taken place. The author regards this state of the vessels as the primary cause of disease. He believes that the first attack in April was of the same nature as the fatal seizure. Around the first apoplectic clot, inflammation, he thinks, was set up in the cerebellum, and this terminated in disorganization. To the inflammatory state of the cerebellum, he refers the exaltation of the sexual propensity; to the stage of disorganization, the depression of that feeling, and the disturbance of the powers of locomotion—namely, the tottering gait, from defective power of co-ordination, ending in a weak and stiffened condition of the left leg. He refers to another similar case which had come under his observation, and pointed out that the median lobe of the cerebellum is a primitive and independent part, and argues that it is the sensory ganglion of the sexual instinct, and belongs to the same category with the optic, olfactory, and auditory ganglia; while he thinks the two cases he has noticed afford pathological proof that another office of the cerebellum is that of a regulator and co-ordinator of the muscular actions, especially of those subservient to locomotion, and to the maintenance of the equilibrium of the body.

In the discussion which followed, Dr. Marshall Hall and Mr. Owen denied that the cerebellum was the seat of the sexual instinct. Dr. Carpenter supported that view.*

§ IV.—*Anatomy and Physiology of the Respiratory System.*

28. *Larynx.*—Dr. Segond has ascertained that ossification of the cartilages of the larynx takes place at different epochs of life, and not merely during old age; ossification originates in certain points of the cartilages, generally where the muscles are inserted. The cricoid cartilage is the first ossified, and the arytenoid the last. When the ossification of the cricoid cartilage is complete, its general dimensions may be so altered as to prevent its anterior part moving under the thyroid cartilage, and hence arises a difficulty in the production of high notes. When the thyroid cartilage is ossified, the foramen generally observed in it is obliterated, the oblique line may appear as a ridge, and the lower border is thickened, and impedes the movements of the cricoid cartilage; these movements may also be greatly interfered with by the unusual length of

* Reported in the Lancet, March 24, 1849.

the lower cornua of the thyroid cartilage. The superior and inferior processes of the arytenoid cartilages resist ossification for a long time.*

— M. Crouzel has discovered a new internal laryngeal muscle, which he calls the crico-thyroideus posticus. The new muscle, he says, is situated above and outside the corresponding crico-arytenoideus posticus; it extends from the posterior aspect of the cricoid cartilage to the inferior border of the thyroid, nearer its smaller cornu. Its posterior surface is covered by the pharyngeal mucous membrane, the anterior is applied to the above-mentioned cartilages; the inferior extremity is inserted into the posterior face of the cricoid cartilage, the superior and external into the lesser cornu of the thyroid cartilage. Its action is to draw the thyroid cartilage downwards and backwards.†

29. *Air-Sacs in Birds.*—According to M. Sappey, who has investigated very minutely the anatomy of birds, the air-reservoirs are exclusively mechanical in their purpose. He argues, that if the respiratory process was effected in the general capillaries, the blood returned by the vena cava to the heart ought to offer properties analogous to those of arterial blood, which, in fact, it does not; again, the structure of the air-sacs differs entirely from that of the pulmonary vesicles, these being very vascular, while those are but slightly so, and the few vessels spread on these sacs have no relation with the pulmonary artery and vein: they rise from the aorta, and return to the vena cava, and therefore only receive arterial blood, and cannot assist in the process of respiration; the air also which penetrates into the greater number of the sacs is respired air. M. Sappey considers them as related: to the diminution of specific gravity; to the isolation of motive power from the function of respiration, which is proved, by the fact of a bird being able to sustain a long flight without respiring; to the strengthening of the equilibrium, and in this respect playing a like part to the air-bladders of fishes; and to the augmenting the extent and force of the voice.

All feathers contain air, and this air is derived immediately from without, and cannot be supplied from the respiratory apparatus.‡

30. *Situation of the Internal Thoracic Organs in reference to the Parietes of the Chest.*—This is the title of one of Dr. Sibson's numerous and useful contributions, and one which is well calculated to supply a want much felt in the practice of auscultation and percussion.

In a well-formed, healthy man, says Dr. Sibson, the chest is marked by several prominences and depressions. The sternum is slightly arched forwards; its greatest projection being on a level with the fourth and fifth ribs. The superior third of the bone projects beyond the cartilages of the corresponding ribs, the inferior sinks below them; the prominence of these ribs, the third, fourth, and fifth, being most pronounced on the left side. The cartilages of the sixth and seventh ribs are crossed by a depression which runs from the inferior extremity of the sternum towards the fifth intercostal space. This is the limit of the chest properly so called.

It now remains to be seen how these prominences and depressions serve to recognise the site of the subjacent organs. If the finger be placed on the inferior extremity of the sternum, it is over a point immediately above the inferior border of the right lung and the lower edge of the heart. A perpendicular line drawn through the centre of the sternum, has, on the right side, the entire right lung, and on the left, the left lung, together with the uncovered portion of the heart. The cartilage of the fourth left rib has lung above it, and the uncovered part of the heart below.

* Provincial Medical and Surgical Journal. † Archives Générales, Nov. 1847.
‡ Gazette des Hôpitaux, Aug. 10, 1848.

The lower end of the sternum is a centre to which the organs may be said to converge. The right lung is above and to the right, the heart above and to the left, the liver below and to the right, and the cardiac orifice of the stomach below and to the left, though more deeply seated.

The ribs are divided by the author into three groups: the *thoracic*, consisting of the five first ribs; the *diaphragmatic*, or four last, have no connexion with the sternum. The cartilages of the sixth, seventh, and eighth have a mixed action, serving in the diaphragmatic group to protect the lower lobes of the lungs, as well as the liver, stomach, &c.: this is the *middle* group.

The uncovered portion of the heart and the middle lobe of the right lung are indicated by two prominences, one on each side the sternum. The lower border of the heart and right lung are limited by the depressions above mentioned. The same depressions point out the superior limit of the stomach and liver. The liver, on the right side, and the stomach, are indicated externally in front by the projection of the cartilages of the sixth, seventh, and eighth ribs, and on the sides by the separation of the seventh, eighth, ninth, and tenth ribs.

It has been stated that the upper part of the sternum projects more than the cartilages of the corresponding ribs. This projection marks a point at which the two lungs unite by their inner edges in front of the large vessels. When the lungs are but little developed at this situation, the sternum is flattened.

The heart and great vessels occupy the largest portion of the space comprised between the sternum and vertebral column. In front, between the sternum and the upper and outer portions of the heart, are placed the edges of the upper and middle lobes of the right, and of the upper lobe of the left lung. Behind, the heart and great vessels are separated from the vertebral column by the œsophagus and aorta. The right auricle extends to the right of the sternum, behind the costal cartilages. The right ventricle corresponds immediately with the inferior half of the sternum and cartilages of the third, fourth, fifth, and sixth left ribs. The left is higher than the right ventricle, and corresponds to the fourth and fifth ribs. It is covered by lung excepting at the apex, while, on the contrary, the greater portion of the right ventricle is uncovered.

The large vessels lie behind the upper part of the sternum and corresponding ribs, but covered by a layer of lung. The aorta is exactly behind the sternum, and rises from the third sterno-costal articulation, and bends slightly from right to left as far as the upper limit of the sternum. The vena cava lies to the right of the aorta, the pulmonary artery to the left; the latter passes under the aorta, on a level with the first intercostal space.

The trachea lies near the aorta, but turns to the right, while the latter turns to the left, so that the aorta lies in front of the left half of the spinal column, the trachea in front of the right half. The large vessels springing from the aorta arise in front of the fourth, and the trachea bifurcates on a level with the fifth dorsal vertebra.

The left auricle corresponds to the seventh and eighth dorsal vertebræ, so that a mitral bruit is most distinct here, while an aortic bruit is loudest at the third and fourth dorsal vertebræ. The ventricles lie on the diaphragm.

The exact situation of the septa of the lungs is important in reference to the diagnosis of some pulmonary affections. It may be said approximatively, that the five first, or thoracic group of ribs, cover the upper lobe.

The preceding remarks have reference solely to the case of a robust individual in a state of calm respiration. If, however, from any cause unconnected with pulmonary disease, he becomes enfeebled and keeps his bed, a less quantity of air being inspired and of blood circulating, the lungs and heart become in consequence diminished in capacity, and the prominences of the chest are

obliterated. The reverse takes place when respiration is exaggerated. In fact, on a deep inspiration, the situation not only of the thoracic but of the abdominal organs becomes materially altered. The diaphragm in its descent carries with it the heart and great vessels, the lungs and trachea at the same time pushing the abdominal organs down.

The author, after noticing certain changes induced by disease independent of the lungs, such as rickets, &c., states the different degrees in which certain of the ribs deviate from their natural shapes; he then proceeds to mention some modifications in the regional anatomy of the thoracic organs, and to propose a natural classification founded on his previous observations. He admits three simple and five compound regions. The simple regions are the two *pulmonary* and the *cardiac*. The *pulmonary* regions are bounded by the diaphragm, which on the right corresponds with the third intercostal space in front, and with the eighth rib behind, and on the left side extends to the fifth rib before, and the ninth behind. In front, these regions are limited, the right, by the right auricle and vena cava, the left, by the left ventricle and the pulmonary artery. The *cardiac* region comprises that portion of the chest which is in immediate relation with the heart, i. e. from the middle of the inferior division of the sternum to the summit of the heart, and from the fourth intercostal cartilage to the lower edge of this organ. The *composite* regions are, the pulmo-hepatic (in which a layer of lung overlaps the liver), the pulmo-gastric, the two pulmo-cardiac, and the pulmo-vascular regions.

The latter portion of Mr. Sibson's important essay is occupied with the application of these anatomical considerations to the diagnosis of thoracic diseases. Thus,—

If the ribs on both sides the chest expand equally and regularly, we may exclude disease of the lungs; but the contrary is the case, if there be any obstruction or diversity in their movements. If, for instance, the thoracic group of the right side move more freely than on the left, and the same shoulder is more elevated, we may in the case of phthisis announce that tuberculization is more advanced on the left side than on the right. So again, if there be pericarditis, the motions of the fourth, fifth, and sixth left ribs are much curtailed.

These illustrations will suffice to show the use which the author makes of his laborious and useful investigations. For further exemplifications we must refer the reader to the original paper, the anatomical portion of the essay being that alone which is strictly consistent with the objects of the present Report.*

31. *Lungs, Minute Anatomy of.*—Mr. Rainey, in an interesting communication to the Medico-Chirurgical Society, gives an account of the minute anatomy of the lungs, of which the following summary includes the principal points of interest:

1st. With respect to the bronchial tubes, these are, for the greater part of their course, cartilaginous; but at a certain distance from the surface, the cartilaginous rings are lost, and the canal is continued by the lining membrane alone. Having arrived about one eighth of an inch from the surface, this membrane also becomes deficient, and the air-passages then appear to be formed solely by the air-cells between which they pass. They are then termed intercellular passages.

The membrane of the bronchial tubes is supplied by a distinct set of blood-vessels, which at the abrupt termination of the membrane anastomose with those of the air-cells. The intercellular passages are at first circular, and, like

* Medical Gazette, March, April, May 1848.

the tubes of which they are a continuation, do not communicate with many air-cells; the communication, however, is very free towards the peripheral destination of the canal. A remarkable anatomical fact, announced by Mr. Rainey, is, that the mucous lining of the bronchial tube does not, as is generally supposed, continue along the intercellular spaces, and into the air-cells; a circumstance which sufficiently explains the different effects of inflammation of the tubes and of the air-cells; the latter, which are lined by fibro-cellular tissue, being accompanied by the deposition of fibrin instead of mucus.

2d. The air-cells open upon the bronchial tubes and intercellular passages by well-defined circular apertures, surrounded by a ring of fibres and a dense plexus of capillary vessels. These vessels, in the lungs of mammals, run between two layers of the pulmonary membrane, so that there is but one vascular network between two given cells, and the blood is aerated on each side. In the lung of the frog, serpent, &c., there are two plexuses between any two cells. Mr. Rainey concludes, in opposition to Dr. Addison (of Malvern), that the fœtus, prior to the act of respiration, possesses fully formed air-cells, which are also surrounded by capillary plexuses.*

— M. Alquié demonstrates the disposition of the bronchial ramifications by the aid of metallic injections, and finds that the air-passages progressively divide in the pulmonary tissue, forming canals, from the sides of which lesser canals are detached, and this division is minuter in man than in lower animals; that the number of bronchial ramifications have no relation to that of the vesicles (renflements) which terminate them; these vesicles are about the fifth of a millimetre in their greatest dimensions, of an irregular oval form, and flattened where they impinge upon other vesicles. These vesicles are sometimes single, and then fixed laterally on the ramifications; more frequently they are found to the number of three, five, or nine together, developed on the extremity of the pulmonary ranuscule; they have proper coats, are in many points isolated, and communicate with those of most of the lobules.†

32. *On the Changes which take place in the Lungs after Division of the Pneumo-gastric Nerves.*—It is well known that after section of the vagus nerves in the neck of an animal, death frequently takes place at an interval of a few days. In these cases the lungs are found to have undergone alterations, characterised by congestion, and the effusion of a large quantity of frothy sanguinolent serum into the bronchi; which lesions have been ascribed by authors to the paralysis of the glottis consequent on the section of its nerve (the recurrent), which induces respiratory obstruction, either directly, or by permitting of the passage of food and other matters into the trachea. Dr. Schiff has performed a variety of experiments which disprove these ideas. By cutting in some animals the recurrents, and in others the pulmonary branches of the vagus, he has convinced himself that the section of the latter causes congestion, with tumefaction of the bronchial mucous membrane; while that of the former only produces narrowing and paralysis of the glottis, without any pulmonary changes. The lesions of the lungs are likewise unaffected by the performance of tracheotomy, and by the section of the œsophagus in the neck (in dogs). He therefore concludes that the state of the lungs is dependent on the integrity of the pulmonary portion only of the nerve. Section of the nerve on one side produced a slighter amount of pulmonary lesion, but never confined to the lung of one side; a circumstances which M. Schiff accounts for by considering the anastomoses in the pulmonary plexus of nerves.‡

33. *On the Chemical Changes of Respiration.*—A new and very extended

* Prov. Medical and Surgical Journal, Jan. 1848. † Archives Générales, Dec. 1847.
‡ Archives für Physiologisch Heilkunde; Gazette Médicale, Dec. 2, 1848.

series of experiments on the subject has been instituted by MM. Regnault and Reiset, who give minute details of the several steps of the process employed by them, the precautions taken, and the kind of apparatus used. Their investigations, which are still in progress, seem to be performed with much care and exactness, and their results may probably be fully relied on. The most important of these results is, that nitrogen is invariably exhaled through the lungs, though the quantity is small, rarely exceeding $\frac{1}{100}$th of the amount of oxygen consumed. Hydrogen and certain carburetted gases usually present themselves in small quantity. As an illustration of the changes which Regnault and Reiset found to occur in the respired air, the following results of an experiment, in which a young dog was confined in the apparatus for 24½ hours, may be quoted:

	Grammes.
Oxygen consumed	182·288
Carbonic acid produced	185·961
Oxygen contained in the carbonic acid	135·244
Nitrogen disengaged	0·1820

If the quantity of oxygen consumed be represented at 100, then the results may be thus stated:

Oxygen consumed	100
Oxygen in the carbonic acid	74·191
Oxygen otherwise disposed of	25·809
Nitrogen disengaged	0·0549
Average quantity of oxygen consumed in an hour	7·44*

34. *Exhalation of Carbonic Acid in Health and Disease.*—The following deductions on this subject are given in a memoir by M. Hervier:

In a healthy state.—1st. The exhalation of carbonic acid varies from hour to hour, having two maxima, at nine in the morning and eleven at night, and two minima, at three in the afternoon and five in the morning.

2d. The exhalation of carbonic acid is inversely to the variations of temperature.

3d. During digestion less carbon is consumed.

4th. The use of animal food diminishes, and a feculent diet increases, carbonic exhalation.

5th. In hard running, the expired air ceases to contain carbonic acid.

6th. Inspiration of ether and chloroform produces the same effect, as does also the use of alcoholic drinks.

7th. During sleep less carbonic acid is expired than in the waking state.

8th. The air expired by infants contains a larger proportion of carbonic acid than that breathed by adults.

In a pathological state.—1st. In well-defined phlegmasiæ in general, the exhalation of carbonic acid is increased.

2d. In inflammations of the organs of circulation and respiration, however, or in such as tend to impede the action of these organs, this rule is reversed.

3d. In the paroxysms of intermittent fever there is an increase of carbonic acid, especially in the last stage.

4th. In diseases not accompanied by fever or marasmus, such as chlorosis, diabetes, nervous affections, there is no variation in the expiration of carbonic acid.

5th. In the exanthemata, including erysipelas and erythema, there is diminished exhalation of carbonic acid.

6th. The same is the case during suppurative process; and also in scurvy, purpura, anæmia, and anasarca.

* London Medical Gazette, Oct. 1848, from Comptes Rendus.

7th. In the last stage of scrofulous, syphilitic, cancerous cachexiæ, and in pulmonary consumption, the exhalation of carbon is likewise diminished.

8th. The same thing takes place in typhoid fever, dysentery, and chronic diarrhœa.

In addition to these conclusions, the author finds that the temperature of the expired air does not vary sensibly in the state of health, but that in disease it varies with the number of respirations.*

§ V.—*Anatomy and Physiology of the Digestive Organs.*

35. *Liver, Minute Anatomy of.*—M. Natalis Guillot has lately entered into an elaborate investigation of the intimate structure of the liver. He describes the liver to consist, as a whole, of a mass inclosed in a fold of peritoneum, traversed in all directions by sanguiferous and excretory vessels, and by a double series of most delicate canals. The matter composing the liver is seen under the microscrope to consist of little yellowish, somewhat transparent particles, pressed against each other, and appearing often to inclose small (sometimes vibrating) molecules; their surface is granular (most anatomists have considered them to be cells, but a membrane around them has never been demonstrated, and by no efforts could M. Guillot discover its existence). They sometimes contain nuclei, but these M. Guillot never succeeded in isolating. The observation of Henle, that they contain bile, is most inexact; we cannot even prove that they contain a liquid; their size is 0·01millim. to 0·04millim. In the liver of fishes, the oil is so abundant, that unless this is drained away, these particles cannot be observed. They are readily seen in the tortoise, lizard, and frog. In birds and mammals they present similar characters. M. Guillot never saw them arranged in regular series, as described by Henle.

When the liver has been deprived of its blood, these particles come so closely in contact, that no passage seems left for the fluids; but when the blood is retained, they present a totally different appearance. The blood then is seen in the canals, where it circulates during life, and where its globules are, there the particles do not touch. These canals (the sanguiferous canals) appear when the liver is injected with coloured water, and disappear as it flows away, the particles again falling into close contact. They are very numerous, and by their anastomoses the mass of the liver is divided into an infinite number of isolated portions. The islets thus formed are composed of a variable number of particles; they may be distinguished in all vertebrata in every part of the liver, deep or superficial. From the fishes up to man, their characters are generally uniform; they are larger in fishes and reptiles than in birds and mammals, and are tolerably regular in form and volume. These islets are themselves subdivided by much smaller canals, which are probably destined for the elaboration of bile. They approach or recede from each other, according to the degree of repletion of the sanguiferous and biliary canals; when the sanguiferous canals which form their boundaries were empty, those boundaries could no longer be distinguished, and the liver then appeared to consist of a mass, where only the contiguity of its constituent particles could be observed.

The divisions of the blood-vessels in mammalia contribute to the formation of the well-known lobules, which do not exist in fishes, reptiles, and birds. M. Guillot has never been able to distinguish a membrane, the pretended prolongation of Glisson's capsule, around the lobules; he believes that the

* Gazette des Hôpitaux, Feb. 20, 1849.

cellular tissue around the afferent vessels gradually disappears, as their branches subdivide. He could not observe the anastomosis of the hepatic artery with the vena porta, as described by Kiernan. The ramifications of the hepatic artery seemed to run parallel to the branches of the biliary canals and portal venules, where they form a network around the lobules, sending off branches in every direction, and supplying several lobules. It is in consequence of the excessive fineness of these ultimate divisions of the hepatic artery, that it is very difficult to introduce a liquid into the sanguiferous canals.

When the portal venules have reached the lobules, they terminate, like the arteries, in the sanguiferous canals, which are interposed between them and the beginning of the hepatic venules.

In all vertebrated animals these sanguiferous canals are the centres, towards which the last divisions of the hepatic artery and vena porta pass, and from which the hepatic vein takes its origins. The different orders of vessels have no other communications than through these canals. Where our instruments can no longer distinguish coats to the vessels, there do these canals commence; they belong not to one set of vessels more than another: they may be injected either through the vena porta or vena hepatica, and also through the hepatic artery, but with more difficulty. M. Guillot counted one hundred canals in two square millimetres. His researches respecting the origin of the hepatic venules confirm those of Kiernan. They are first seen in the centre of the lobules; in some animals but one primordial branch is seen situated in their axes. In man, the axis of the lobule is traversed by these radicles.

The study of the radicles of the bile-ducts is most difficult; their characters are nearly alike in all classes of animals. They form, in their first divisions, anastomoses around the vena porta and hepatic artery, and a complete network of vessels around the lobules, which vessels open into sinuses also surrounding the lobules, and from the union of these sinuses the larger ducts spring. They terminate by forming regular anastomoses of equal-sized canals throughout the lobules, and have no membranous walls. These canals run between the particles which form the islets, and just as we have seen the islets surrounded by the blood-canals, so do we find the particles, of which these islets are formed, surrounded by these lesser biliary canals. It is impossible to ascertain how the lymphatics commence in the liver. Thus it appears that the livers of all vertebrata are composed alike, consisting of oval particles generally regularly placed; that through these particles circulate blood, bile, and lymph; that the blood passes into the blood-canals (which have no coats); and that the blood from the vena porta and hepatic artery reach the hepatic vein only through these canals. The anastomoses of these canals form little islets among the particles. The biliary canals are hollowed out among the particles which form the islets, and they appear to be the common origin of the excretory ducts and the lymphatic vessels, an injection passing readily from one to the other.*

36. *Liver, Nerves of.*—Dr. C. H. Jones says that the liver is amply supplied by nerves from the left pneumo-gastric semilunar ganglion and the right phrenic, and these are usually described as entering by the transverse fissure. Passing into the portal canals, these nerves run in the areolar tissue which surrounds the vessels, and may be followed for some distance along the canals. By a minute dissection and the aid of the microscope, a large number of them are seen distributed on the coats of the portal veins, and forming plexuses across them; a still greater supply may be traced to the branches of the hepatic artery, and appear distributed in a like manner. These nerves being

* Annal. des Scien. Nat., March 1848.

here so abundant, Dr. Jones thinks it possible that the mode of termination of organic nerves might be ascertained. It appeared to him that the most minute branches, after running a long course on the coats of the vessel, either unite with a similar filament or enter a neighbouring trunk, but sometimes the filament is lost while tracing it. The nerves do not appear to blend with the fibrous or arterial tissues; and they seem in their long course to taper away, and that not by giving off filaments, but *per se*. The hepatic veins show a much smaller supply of organic nerves, and so also do the hepatic ducts. The nerves do not enter the lobules; their structure is of fibres, termed "gelatinous" by Henle, mingled with a few cerebro-spinal tubules. Often only a single tubular fibre is seen in a nerve of some magnitude; and in such case it is hard to say what becomes of the tubule—it cannot form a loop. Dr. Jones thinks it may lose its investment, and become confounded with the surrounding substance. The organic nerves he describes as bands of finely striated or granular material, in which elongated nuclei are set at intervals; and it is certain that this basis-substance tends to division in a longitudinal direction. As the nerves do not penetrate the parenchyma of the liver, it may be presumed that the function of the hepatic cells is discharged independent of nervous influence.*

37. *The Liver of Insects*, according to Dr. Leidy, consists of whitish filiform, and tortuous tubes, closely placed against the alimentary tube, generally opening into it by separate orifices, frequently after joining to form short trunks. When few in number, they are sometimes three or four times the length of the intestinal canal. They are found to consist of a clear, transparent, amorphous basement membrane, the inner surface of which is covered with the secreting cells. These cells are round, oval, or nearly cylindrical; their average size, ·09 millim. The contents are of a white, yellowish, or brownish colour, and consist of finely granulated matter, numerous oil-globules, a granular nucleus, with a transparent nucleolus. The cells increase in size as they advance from the extremities of the tubes, and become filled with granular matter, which obscures their nuclei. These nuclei are central and of uniform size, the nucleolus always transparent, '006 millim. in size. The biliary tubes are bathed in blood, or the nutritive fluid. The cæca of the liver of the crustacea and mollusca present very similar appearances.

In the liver of vertebrata the lobules lie in all directions, not regularly arranged side by side, as may be seen by section of an injected portion. Dr. Leidy describes them as composed of an intertexture of biliary tubes, and of delicate anastomoses of blood-vessels ramifying in the interspaces of the network, the whole being intimately connected by white and yellow elastic tissue. In structure the biliary tubes resemble those of the invertebrata, except in their mode of arrangement, the free tubes in the lower animals in vertebrata anastomosing, or forming an intertexture. The tubules are generally about twice the diameter of the secreting cells, and those of one lobule distinct from those of the surrounding lobules. The secreting cells are angular or polygonal, and line the interior of the tubules; in their appearance they resemble the cells in the cæca of the lower animals. The granular matter in them gives the colour to the cell, and often obscures the nucleus. The commencements of the hepatic ducts, and the interlobular trunks, freely anastomose, forming trunks, which run at right angles to the surface of the liver. The hepatic artery and vena porta form a network around the lobules, but Dr. Leidy could not ascertain if they here anastomosed; they both send branches, which enter the lobules at right angles, and then freely communicate between the

* Medical Gazette, July 14, 1848.

interspaces of the biliary tubes, converging towards the centre of the lobule. The hepatic artery, he considers, is appropriated to the nutrition of the tissues of the liver; and the vena porta supplies the cells which secrete the bile.*

38. *Gastric Juice, Composition and Functions of.*—According to M. Mialhe, the gastric juice is composed of two principal agents, an acid and a ferment. The use of the acid is to render soluble and prepare the different matters; the ferment, the pepsin, alone causes the transformation of the albuminous matters; while the diastase, which is furnished by the salivary glands, and is quite distinct from the pepsin, effects the transformation of the amylaceous matters. The ultimate products of these transformations are albuminose and glucose, substances which alone are fitted for digestion. The first stage of digestion consists in the disintegration of the food, and its mixture with fluid; the second, in the production of chyme and dextrine; the third, in the transformation of these two products into albuminose and glucose—substances very soluble, and proper for assimilation and nutrition. Hence digestion would seem to be a simple solution of alimentary bodies. M. Mialhe concludes from analogy, that the solution of fatty matters is likewise effected by a ferment.

Bouchardat and Sandras fed dogs with a mixed diet, and shortly afterwards divided their pneumo-gastric nerves. On examining the bodies of the dogs, they found that the digestion of the albumen and fibrin, which is effected in the stomach, was arrested; but that the amylaceous and fatty matters, which are digested in the intestines, were dissolved and absorbed. No chyme was found in the stomach, but the starchy principles, which passed into the intestines, were there converted into glucose, and the fatty matters absorbed by the lacteals.†

39. *Alcoholic Fluids, Digestion of.*—The last-mentioned authors conclude, from their experiments, that alcohol is absorbed by the veins, and not by the lacteals; and that, with exception of the small quantity which escapes by the lungs, the alcohol is converted into carbonic acid and water, either directly or by passing through the intermediate stage of acetic acid.‡

40. *The Cause of the Inability of the Horse to Vomit.*—The cause why the horse does not vomit has never been clearly explained. Lamorier attributed the fact to the deep position of the stomach, and to a valve which he supposed existed at the superior orifice of the stomach. Bertin refuted these errors, and showed the real causes—viz. the existence of a sphincter at the orifice of the stomach, and the very oblique insertion of the œsophagus into this viscus. In the single experiment of Lamorier, in which water issued from the stomach on pressure, the stomach must have been diseased; and, in fact, wherever a horse is found to vomit, the stomach is invariably diseased. In twenty experiments which Flourens performed, he only once found water to issue from the œsophageal orifice (even when the weight of two men were placed upon the stomach filled with water), and in this instance the mucous membrane was found pierced by deep holes, and covered by worms. There are three muscular layers in the stomach of the horse. The *middle* muscle commences at the superior orifice, and reaches to the lower, and is formed of longitudinal and circular fibres. The *external* is the continuation of the longitudinal fibres of the œsophagus. The *internal* is the most remarkable and important: it forms at first a large fleshy bundle surrounding the superior half of the œsophageal orifice, and lower down passes off in two

* American Journal of Medical Science, Jan. 1848. † Comptes Rendus, Jan. 1849.
‡ Annal. de Chim. et de Phys., Dec. 1847.

branches, which form a curious interlacement with the other muscles of the stomach, and this muscle is the sphincter described by Bertin. Flourens draws these conclusions from his own experiments—1st, that the obstacle is situated in the superior orifice of the stomach; 2d, that it exists only in this orifice; and 3d, that it depends on the sphincter described, and on the oblique insertion of the œsophagus into the stomach, thus confirming Bertin's views.*

41. *Uses of the Pancreatic Fluid.*—Dr. Bernard has performed a series of experiments upon the uses of the pancreatic juice, from which he has described results of great importance. He describes the *healthy* fluid as colourless, limpid, and viscous, flowing slowly out in large pearly or syrupy drops, and frothing up on agitation. It possesses no peculiar odour, and imparts to the tongue a saline taste like that of the serum of the blood. It is invariably alkaline. Exposed to heat, it coagulates into a very white, concrete matter, as completely as does the white of an egg—not a drop of free liquid remaining. It is also precipitated by the mineral acids. Alkalies redissolve the coagulated matter. We may allow, with Magendie, Tiedemann, and Gmelin, that this fluid possesses the characters of albumen, but in a physiological point of view, there is no relation between it and albuminous fluids; and, indeed, chemical distinctions between the two exist. Thus, when the organic matter of the pancreatic juice has been coagulated by alcohol and dried, it may be easily and entirely redissolved in water, to which it imparts the viscosity and physiological properties of the pancreatic juice.

Morbid pancreatic juice is described as generally colourless, sometimes opalescent, and at others reddish, possessing no viscosity, and producing a nauseous saline taste. It is less dense, and coagulates neither by heat nor acids. The transformation of the normal into the morbid juice is so gradual, that various intermediate shades exist, as indicated by the quantity of coagulable matter, upon the amount of which the activity of the juice depends.

No fluid of the economy is so liable to alteration. Exposed to a low temperature (42° to 52°), it may be preserved for several days, increasing in viscosity, and acquiring the condition of a light jelly. Exposed to from 104° to 112° for some hours, its properties, with the exception of the alkaline reaction, become entirely altered. During the heats of summer, or in stormy weather, such changes may be effected in a few moments. The deposition which takes place furnishes to the microscope a peculiar silky aspect, and a large quantity of needle-shaped crystals, resembling those of margarine or margaric acid. These changes in the composition of the fluid explain the discrepancies of authors in respect to its quantity of albumen.

The special action of the pancreatic juice on neutral fatty bodies out of the body.—Exposure of fatty bodies to the juice at once produces a complete emulsion, and all fatty substances are resolved into glycerine and fatty acid, and in the case of butter, butyric acid. Parallel experiments instituted with other fluids, as bile, saliva, gastric juice, serum of the blood, produce no such effects on fatty bodies. These experiments have been frequently verified in the presence of distinguished men, as Magendie, Berard, Andral, &c. If a *morbid* or *altered* juice be employed, it exerts no action, soon separating from the fatty matter, without modifying it. Partial changes are attended with imperfect results.

The pancreatic fluid is indispensable for the absorption of fatty matters and the formation of chyle.—The chyliferous vessels are only found to contain a white, milky, homogeneous fluid, on condition of their having absorbed

* Annales des Sciences Natur., Sept. 1848.

fatty matters in the intestine; so that a limpid, transparent chyle (improperly called vegetable chyle) is a chyle without fatty matters; and a white, homogeneous chyle (improperly called animal) is a chyle containing fatty matters, emulsioned and modified. That this is effected by the agency of the pancreatic juice may be demonstrated. If dogs are killed during digestion, oil will be found unaltered, until it comes in contact with this fluid; and if the pancreatic ducts be tied, all alteration is prevented. In the *rabbit*, the pancreatic duct opens into the intestine very low down, fourteen inches below the choledochus; and if fatty matters be introduced into its stomach, and the animal be killed in three or four hours, they will be found to become emulsioned only at that low distance down, and only after then it is that the white absorbents are seen.

If it be asked how it happens that a fact now so easy to demonstrate, that it is the pancreatic fluid and not the bile which emulsions fatty matters, has been overlooked, the author is disposed to attribute it in a great measure to the prevalent belief in the salivary character of the pancreatic fluid having misled inquirers. Brodie's experiments on *cats*, showing that the chyle was rendered limpid by ligature of the ductus communis choledochus, were not verified by those of Magendie on *dogs*, who found the fluid milky and homogeneous. But in the *cat*, the pancreatic duct anastomoses with the choledochus before opening into the intestine, so that Brodie, unaware of the importance of the pancreatic juice, might easily have tied both vessels; while in the *dog*, the choledochus is completely isolated from the two pancreatic ducts of that animal.*

This important memoir is translated entire in the 'Provincial Medical Journal' of March 31, 1849.

42. *On the Intestinal Mucous Membrane.*—Dr. H. Jones directs attention to a layer of granular matter, enveloping nuclei, which lies immediately beneath the mucous membrane of the intestines, and in contact with the basement membrane. This granular layer or "*substratum*" of the mucous tissue, which is well seen in the colon, forms, together with the nuclei above mentioned, a great part of each villus, filling up the whole space between the limitary membrane and the lacteal and capillary vessels. This substratum is the seat of the black discoloration, which is not uncommon in the intestinal mucous membrane; and is also the part principally affected in dysentery, in which it is often left bare by the disappearance of the mucous membrane, and is infiltrated by a plasma passing into imperfect cellular forms.

In the period of inactivity, the villi are semi-transparent; when absorption is going on, however, they are opaque, from the presence of oily matter in the form of globules and granules of different sizes. The larger of these Dr. Jones believes to correspond with the absorbing cells described by Professor Goodsir, as formed during the process of absorption, and which are very inconstant in their number and size, being sometimes entirely absent in villi which are manifestly in a state of activity. The opacity caused by the absorption of the chyle may be also observed frequently to pervade the whole length of the villus, thus indicating that this function is carried on in every part, although probably more active, as described by Mr. Goodsir, at the summit. The active agents of absorption are believed by the author to be the nuclei distributed among the granular matter of the villus, and which, though obscured during the process by the presence of milky chyle, are constantly visible in the inactive and semi-transparent villus. "It is well known now, that the formation of perfect cells is by no means to be regarded as essential to the

* Archives Générales, tom. xiv.

exercise of the energy of nuclei, those fundamental and efficient parts of almost all cell-formations. It is also known that the formation of perfect cells indicates a certain degree of permanence in the structure so formed, and that their contents are destined to be retained for a period, to undergo some elaborating change, not to be immediately yielded up; while, on the other hand, the non-completion of cells indicates that the process is of a rapid character, and not intended to produce any considerable change in the material acted on. Remembering these facts (of the general truth of which there cannot be much doubt), it will be admitted, perhaps, as highly probable, that the nuclear corpuscles of the granular basis of the villi exert an attraction on the chyme by which they are surrounded, and draw it continually into the substance of the villus, from whence it is rapidly conveyed away by the efferent lacteal."

The author agrees with Professor Weber, that the shedding of their epithelium is not *necessary* to enable the villi to perform their functions. He has seen the villi clad with their epithelium when the lacteals were filled with chyle; nevertheless it is certainly common to find them divested of this covering when absorption is most actively present. Dr. Jones corroborates the observation of M. Lacauchie, that the villi are subject to retraction and thickening, under the influence of circumstances which are not well understood, as they do not appear to be possessed of any contractile tissue as an element of their structure, and "the distension of their capillary plexus with blood would rather have a contrary effect."

Dr. Jones has examined with great care the solitary and aggregated glands of the intestine in the human subject, as well as in the rabbit and dog. The patches he considers, like most other anatomists, to be merely aggregations of solitary glands. The depressions in the aggregated glands do not correspond to any distinct open mouths of follicles, but seem to be produced by the absence of villi from those parts of the mucous surface. The structure of the solitary and aggregated glands is very similar; they are situated in the substratum, below the basement membrane, and covered by a plexus of capillary vessels. On making a vertical section of one of the solitary glands of the human intestine, it is seen by the microscope to consist of masses of nuclear granules, "which, for the most part, are solid, not including a distinct cavity, and not contained in any definite follicular envelope; they lie at various depths; the larger are in contact with the surface, the mucous membrane, with its rows of vertical follicles, having disappeared above them; the smaller lie unquestionably beneath the mucous surface, and, I feel quite assured, have no orifice of communication by which their contents might escape into the intestinal cavity; even pretty strong pressure does not evacuate the contents of the smaller masses, while it sometimes produces this effect on the larger, which more closely adjoin the surface. The form of these masses varies a good deal; often they are considerably flattened, usually, however, more or less globular—their upper portion being always convex, and tending to approach the surface; when it reaches this, the mass appears to become more or less completely evacuated, and a shallow depression may then result; this, however, is but rarely seen. In the cæcum of the dog, the solitary glands are more or less prominent on the surface, and exhibit a very distinct appearance of a central orifice. When macerated in acetic acid, they appear as circular spots about the size of a large pin's head, rather flattened, and with perfectly defined margins. In vertical sections through the central orifice the mucous membrane is seen to dip down, and become gradually thinner; sometimes it appears to be perforated at the bottom of the depression; at others, is continued plainly across. The gland itself consists of a solid mass of nuclear

corpuscles, with a little granular matter. It is contained in a kind of capsule, which seems to belong to the submucous tissue; at the bottom of the depression, the mass comes in contact with the thin mucous membrane, if it exists, or with the orifice, if it be absent; but can rarely be made to escape even by strong pressure. It does not appear that these glands can be regarded as true follicles; their capsule is not continuous with the basement membrane; their contents are not epithelial particles lining the wall, but a solid mass of nuclei; and, lastly, the existence of an orifice in them does not seem constant, whether evidence of it be sought for by minute examination, or by observing the effect of pressure upon their mass. In the rabbit, the long and wide appendix cæci has its mucous lining greatly thickened by a layer of masses consisting of nuclear granules; these are of elongated conical form; their apices reach to the surface, and lie in fossulæ formed by septal folds of mucous membrane; over their surface a capillary plexus is spread, supplied by the long vessels which run up from below; they appear to be quite solid, and their apex is certainly not perforated, but in some instances appears to be invested by a distinct homogeneous membrane. In all these cases, it is worthy of remark that the masses of nuclear granules are effected in a peculiar manner by acetic acid; instead of rendering them transparent, it makes them much more opaque, so that their outlines become extremely distinct even to the naked eye. This circumstance, as well as the marked difference between their contents and the epithelium of any glands or follicles, is very characteristic of them, and tends to prove that they are not mere follicular involutions of the mucous surface, but superadded structures designed for some special but unknown function."

The aggregated and solitary glands would thus appear to be, according to Dr. Jones's observations, an increased development, in particular localities, of the nuclei and granular matter, which he described as forming the general substratum of the mucous membrane. In the small intestine, where he says there are in health few or no *solitary* glands, such as exist in the colon, the bodies which in the diseased state are described as such are apparently adventitious structures, and are composed of nuclei and granules similar to those of the gland, but not inclosed in any capsule. The author believes these to be analogous to pimples of the skin, and, like them, capable of disappearing by absorption.*

§ VI.—*Kidneys and their Secretions.*

43. *Kidney, Minute Anatomy of.*—Dr. Gerlach considers that the connexion of the tubuli uriniferi with the Malpighian capsules, as described by Mr. Bowman, is now placed beyond all doubt, notwithstanding that so many authorities still oppose this view. Dr. Gerlach, out of three hundred attempts, only succeeded six times in injecting the capsules from the ureter, and then only in the sheep, the frog, and the horse—proof enough of the difficulty of this operation. Bowman never succeeded once; his injections were made from the artery, but they convincingly show the reality of the communication. Van der Kolk showed Dr. Gerlach the kidneys of a crocodile, injected from the ureters; in these animals the tubuli and the Malpighian capsules are unusually large, and the filled capsules could be seen by the naked eye. Henle has been lately convinced by Dr. Gerlach's preparations, that the communi-

* Medical Gazette, Nov. 17, and Edin. Monthly Journal, Dec. 1848.

cation exists, though he has published opinions to the contrary, relying on Hyrtl and Bidder's observations.*

44. *Supra-renal Capsules.*—Until recently, anatomists held very vague notions concerning the nature of vascular glands—whether they contained any true glandular elements was scarcely known—and the function attributed to them, of exercising some influence on the composition of the blood, was solely in consequence of the large quantity of that fluid which they contained. Recent microscopic observations have demonstrated that these glands contain the elements of a true glandular structure, viz. a membrane, a network of vessels, cells, and cell-nuclei; the only difference between vascular and true glands consists in this, that the former have no ducts, and that their secretions return again into the blood by endosmosis. Dr. Ecker gives a very minute anatomical description of the supra-renal capsules; he attributes to them, as to the other vascular glands, the function of secretion, because, as he demonstrates, they contain all the elements of true glandular structures, consisting principally of closed gland-vesicles, or sacculi, which are surrounded by a network of blood-vessels, and present the closest resemblance to those of most true glands with temporary ducts, e. g. the glands of the intestinal mucous membrane; because these vesicles, as in true glands, consist of a finely granular substance, of nuclei, and of cells; and because these organs receive a larger quantity of blood than is necessary for the mere nutrition of their textures. It seems certain that the secretion of these glands must pass again into the blood, for there is no other outlet for its escape; and Dr. Ecker believes that it passes directly into the blood, and not through the medium of the lymphatics, for he has never been able to ascertain the presence of lymphatics in these glands. He considers that the structure of the supra-renal capsules indicates that they serve some general, not a special, office in the economy; and that this office is connected with nutrition, for their secretions are rich in protein compounds. The functions which have been attributed to the different vascular glands are very unsatisfactory: their neighbourhood to important organs have led observers erroneously to connect them in office with those organs; Dr. Simon, for instance, represents the thymus gland as a storehouse of fuel for respiration in early youth, but its secretion is far too rich in protein compounds. Dr. Ecker is of opinion, that all vascular glands discharge the same office, viz. the formation of a fluid from the blood, rich in protein and fat, which fluid is again returned to the blood, and serves for nutrition; they hence become so many storehouses, where the too abundant materials of nutrition, which the blood at any one time may contain, are laid up, and in due season returned into the circulation, as the wants of the system may demand.†

45. *Influence of the Nervous System on the Urinary Secretion.*—M. Bernard has recently made an interesting and unexpected discovery in this particular. It consists in the fact, that the urine may be modified and made to contain sugar by puncturing a certain part of the floor of the fourth ventricle. The change takes place in less than two hours after the operation. A repetition of the experiments has demonstrated that the portion which it is necessary to wound, in order to produce this curious effect, is a point corresponding with the origin of the pneumo-gastric nerves.‡

* Müller's Archiv, p. 102, 1848. † Medical Gazette, vol. i, pp. 830, 874.
‡ Archives Générales, Mai 1849.

§ VII.—*Absorbents and Lacteals.*

46. *Absorbent Vessels, Termination of.*—It has long been a disputed question, whether absorbent vessels open into veins elsewhere than at the point where the subclavian and jugular veins unite. For many years Dr. Nuhn has observed, when injecting the lymphatics, that some of the quicksilver invariably found its way into branches of the veins which pass out of the glands; and there is nothing by which we can disprove the assertion, that this takes place through rupture of the vessels within the gland. Dr. Nuhn's observations were confined to the relation of the absorbent vessels with the veins *external* to the lymphatic glands; he has often distinctly observed large absorbents open into the large veins of the abdomen; and he once saw a large branch from the lumbar lymphatics pass into the renal vein, and that it was truly a lymphatic vessel was evident from its anatomical characters. In another case, two good-sized branches passed from the right iliac lymphatics, and opened into the vena cava inferior. There could be no deception here as to their being veins; we must therefore no longer consider the thoracic duct as the common trunk of the lymphatics of the lower half of the body; and there are many reasons why this should not be so.*

47. *The Lymphatics of the Tongue* are very numerous—they cover the greater part of its mucous surface. Their mode of origin is the same as in other parts: from the dorsal network which they form trunks arise, which pass some forwards, some backwards; the posterior trunks are submucous, they pass before the epiglottis, through the superior constrictor, and open into glands on the side of the middle of the neck; the anterior trunks pass vertically downwards, through the muscular tissue of the tongue, and ramify in a gland near the os hyoides. The branches from the lateral network pass by the stylo-glossus to glands in front of the jugular vein.†

48. *Lacteals.*—In a case where the lacteals were filled with chyle, E. H. Weber observed that the capillary network of chyle-vessels existed in the spaces between the intestinal villi, as well as within the villi themselves. On the walls of Lieberkühn follicles he could not observe any chyle-vessels. Hence he concludes that absorption of chyle goes on, not only in the villi, but also in the spaces of mucous membrane between them. Physiologists of late have considered, that during absorption the epithelium falls off; but Weber found lacteals filled with chyle, although their mucous membrane was still covered by epithelium. He found, also, that the cells of cylinder epithelium undergo changes in figure and colour, while absorption is going on; that in dogs and frogs they swell up, and contain chyle-corpuscles; and that in man the epithelium has, on its reversed side, a second layer of cells, which are not cylinder- or prism-shaped, but round, and remarkable some as being filled with an opaque, white, and some with a transparent oily fluid, so that different cells seem to have the power of absorbing fluids of different qualities.‡

Professor Oesterlen asserts that he has fed animals on food mixed with finely-powdered charcoal, and has afterwards, by aid of the microscope, discovered the charcoal's presence in the blood of the mesenteric veins, the vena porta, the liver, lungs, &c., the surface of the intestinal canal being perfectly healthy. He has, in like manner, seen particles of Prussian blue in the blood. M. Mialhe has repeated these experiments with totally different results, and he positively denies that any particle of charcoal can pass into

* Müller's Archiv, p. 173, 1848. † M. Sappey, Archives Générales, tom. xvi, p. 1.
‡ Müller's Archiv, p. 400, 1847.

the uninjured vascular system. On the contrary, Eberhard* confirms Oesterlen's views. He rubbed mercury on the left side of a rabbit's belly, and found globules of that substance in a vein of the skin of the same side, but not of the opposite side. Charcoal also, and sulphur, which he had given to a dog, he found in the chyle, the lymphatics, the vessels of the mesentery, and elsewhere; and he supposes that globules of fat, and even the ova of entozoa, may thus pass directly into the blood.

49. *Lymphatics.*—Dr. G. E. Day says, that the researches of Herbst have shown that the absorbing power of the lymphatics is by no means so limited as has been commonly supposed, but that they can convey almost all soluble substances into the system; this is proved for alkaline and metallic salts, starch, colouring and odorous matters. There is, however, one class of bodies, those poisons which act on the brain and spinal marrow, and usually included among narcotics, which most decisive experiments have shown cannot be carried by the lymphatics into the system. The fact has been long observed, but as yet no sufficient explanation of the anomaly has been offered. Dr. Day quotes experiments to show, that when the circulation through a part has been interrupted, a narcotic poison introduced does not exert its specific action; now this must happen either because the poison does not enter the lymphatics, or having entered, is rendered inert in them, or cannot be conveyed by them. Dr. Day performed experiments to decide this point, and he concludes from them that strychnia and prussic acid cannot be conveyed into the system by the lymphatics, and that the non-absorption of these poisons is due to a specific action exerted by them on the coats of the lymphatics, by which their irritability is destroyed, and they are rendered incapable of transmitting their contents.†

50. *Absorbents of the Lungs.*—Jarjavay has investigated minutely the absorbent vessels of the lungs and heart. He found that the lymphatics of the heart open into glands surrounding the left bronchus. The lymph of the upper and lower parts of the lungs is poured into the thoracic duct by two distinct vessels. The lymphatics of the left lung open constantly into the thoracic duct; those of the right lung sometimes anastomose with the large lymphatics of the right side of the body. Once he saw them run behind the aorta into the glands in which the vessels of the left lung and heart meet, and from whence they pass into the thoracic duct. The calibre of these vessels in the lungs he found varied much; affected in part by the nature of the death and duration of the disease. it was lessened by long fasting; greater in chronic diseases than in acute. In pleurisy, the vessels were filled with a rosy-coloured fluid, or with a plastic mass, like the exudation of the pleura.‡

§ VIII.—*The Reproductive System.*

51. *Testicle, Descent of.*—The hypothesis that the gubernaculum testis arises from the base of the scrotum, and draws the testicle down, is absurd. The scrotum at first consists of the cutis and a fine layer of fascia superficialis, and within this there is a mass of soft gelatinous tissue which completely fills the sac; merely a few fibrous threads can be seen by the microscope, and from these the dartos is formed. Previous even to the existence of the Wolffian bodies, a peculiar ligamentous body can be observed, reaching from the lower end of the testicle to the inguinal canal, and surrounded by serous and cellular membranes. Before it enters the canal, it consists of an elastic, pulpy, grayish

* Canstatt's Journal, Band i, p. 27, 1848. † Prov. Med. and Surg. Journal, May 1848.
‡ Canstatt and Eisenmann's Journal, Band i, p. 27, 1848.

mass, in which the microscope shows fibres and cellular tissue, but no fat; after its entrance into the canal, no cellular or muscular tissues, which are generally represented as spreading out over the scrotum, can be observed, but a long, roundish, little sac is forced down before it through the external ring. This consists of three layers; the first could be followed to the external ring, and corresponded with the fascia superficialis; the second contains the muscular fibres, which arise in the canal, and the third consists of cellular and fibrous tissues. When these last are separated up to the internal ring, the peritoneum is seen to consist of two layers, of which the external forms the inner layer of the little sac, and the other closes completely the inner ring against the testicle. The testicle passes down into the two layers from behind forwards, and thus gains two peculiar coverings, one cellular and fibrous, the tunica albuginea, the other serous, the tunica adnata. The gubernaculum next appears, fixed to the lower end of the testicle, and growing downwards, draws the testicle into the canal; and it is by the further development of this gubernaculum, and by its own growth, that the testicle is at last brought into the scrotum, the gubernaculum forming a road for it. When the testicle has reached the base of the scrotum, the duty of the gubernaculum is fulfilled. Here the testicle is covered by the cutis, fascia, and dartos, layers proper to the scrotum; the three layers which it has brought down with it, are the fascia superficialis, muscular fibres of int. obliq. and transv., and the cellular layer of the peritoneum; the tunica vaginalis and the adnata testiculis are folds of its serous layer.*

— E. H. Weber has for several years investigated the mode in which the descent of the testicle is effected in man and some of the lower animals. He finds that in the spot where the inguinal canal is to be formed, a closed sac is formed between the fibres of the abdominal muscles, and entirely independent of the peritoneum; it may be likened to a bursa mucosa, and considered as a serous sac. It increases upwards towards the abdomen, presses together the folds of peritoneum in which the testicle is suspended, and carries upwards muscular fibres from the int. obliq. to the lower part of the testicle. It hence appears that the gubernaculum of Hunter is not a solid cord, but a cavity covered by muscular fibres. The lower part of the sac grows downwards towards the scrotum, forming a way there for the testicle, even before this has commenced its descent; this lower part is not covered by muscular fibres. When the testicle descends, the upper part of the sac becomes doubled down into the lower, like a double nightcap; the process is best observed in hares and rabbits, and particularly in the beaver. This inversion is brought about by the natural formative action, and partly by the mechanical action of the muscles which surround the upper half of the sac; but their exact share in the process, and how exactly this is effected, does not appear very evident.†

52. *Mucous Membrane of the Uterus.*—The presence of this membrane, M. Robin states, is readily shown; it is of considerable thickness in the fundus of the uterus, and, in fact, thicker there than in any other part of the body; it contains tubular glandules, which are visible to the naked eye, independent of the state of gestation; these glandules are united to each other by a peculiar tissue and by vessels, and through the union of these elements, the dermis or chorion of the mucous membrane is formed. The mucous membrane is covered by an epithelium, which is the only part of it hitherto described; its thickness is from three to five millimetres, increasing at the menstrual periods, and decreasing in old age; it is thinner towards the neck of the uterus, and at the entrance of the fallopian tubes. It is very adherent to the proper tissue of the uterus, but readily torn. When a vertical section of the uterus is made,

* Dr. Beck, Schmidt's Jahrbuch., p. 290, 1848. † Müller's Archiv, p. 403, 1847.

its line of demarcation from the other tissue is very distinct, especially when it is injected with blood. In its intimate structure it consists, in great part, of fibro-plastic elements. The membrana decidua is nothing but the mucous membrane hypertrophied during gestation; its surface is perfectly smooth. The long and floating villosities, such as have been described on it by Bischoff, are due to artificial changes. The decidua vera is continuous with, and identical to the decidua reflexa; large vessels are seen passing from one to the other, and uterine glands exist alike on both. The decidua reflexa increases with the growth of the ovum, becomes thinner as this enlarges, and its vessels are at last partly atrophied. (The decidua serotina is no consecutive formation, but merely that portion of the membrana decidua which is naturally interposed between the ovum and the muscular walls.) Thus neither the decidua vera nor the decidua reflexa are new formations; one is naturally hypertrophied, and the other an expansion of this around the ovum; their intimate structure is the same. The decidua reflexa retains the ovum *in situ*, and becomes a temporary maternal placenta. The placenta is entirely composed of large villosities, infinitely ramified, each terminal branch of which is supplied by a single arterial capillary. The mucous membrane consists of the same elements during gestation as at other periods, viz.—fusiform fibres and fibro-plastic nuclei, cellular tissue, interposed between the tubular glandules, and united by an amorphous substance, through which granules are scattered. At the fourth month of gestation, the mucous membrane begins to lose its character of vital energy, becoming less adherent to the uterine walls, thinner and atrophied, and, at the same time, a new membranous formation, soft and homogeneous, appears between it and the muscular tissue; this is the first appearance of the layer of mucous membrane which succeeds the membrana decidua. After accouchement it gradually becomes thicker, and takes the natural characters of the mucous membrane, about seventy days after the ovum's birth.*

53. *State of the Internal Surface of the Uterus after Delivery.*—The extensive researches of Dr. Colin have led him to the following conclusions regarding the state of the internal surface of the uterus after the expulsion of the mature ovum. They agree with the doctrines of Sharpey, Coste, &c.

1st. It is not the case that, after delivery, the internal layer of the muscular tissue of the uterus is laid bare. 2d. A vascular membranous layer is retained, and covers the muscular tissue. 3d. This layer does not differ from the decidua vera, or, in other words, the uterine mucous membrane. 4th. This layer is not carried away with the lochiæ, nor destroyed even when the discharges are purulent. 5th. Some flakes of membrane, probably detached during labour, are sometimes discharged with the first of the lochiæ; but the essential vascular part remains. 6th. This part is the seat of the process set up to reproduce the perfect internal membrane of the uterus. 7th. Purulent lochiæ, instead of resulting from the disorganization of this layer, are the consequence of the reparatory process set up in it. 8th. This layer regains its natural mucous constitution twenty or thirty days after labour. 9th. The new mucous membrane is, at first, pulpy, thicker and more vascular than normally. 10th. From this time its elements recontract; and, 11th, about the sixtieth or seventieth day, it has regained its own proper condition.†

54. *New Theory of Fecundation.*—Bischoff proposes a new theory of fecundation; he refuses to admit that the spermatozoa are the essential parts of the semen, though their movements may be necessary to sustain the proper constitution of the fluid. He sees nothing opposed to the opinion that fecunda-

* Archives Générales, July 1848. † L'Union Médicale, and Monthly Journal.

tion is produced by a chemical action, is the consequence of a catalytic agency, wrought on the ovum by the semen. Liebig's discoveries have thrown fresh light on his mind. All motion is but the effect or the measure of material changes—where there is movement, there is change of form and substance; now the earliest appearances of fecundation are most remarkable internal movements in the yelk; they have been seen, indeed, in the unfecundated ovum; a right direction and intensity is given to these movements by the action of the spermatozoa. Observers, he says, are apt to look upon the spermatozoa as animals, because they cannot divest themselves of the movements these exhibit, but he looks on these movements, as being but the visible expression of hidden molecular changes. Chemical action and vitality are forces which only manifest themselves by immediate contact. The spermatozoa excite an internal movement, by which the seminal fluid is rendered prolific. Fecundation is an aceidental but necessary result of the consentaneous action of the ovum and the semen.*

55. *On the Development and Use of the Spermatozoa.*—The following account of the origin of the spermatozoa is given in the 'Cyclopædia of Anatomy and Physiology:'

1st. All spermatozoa originate in "formative vesicles," which appear to resemble the secreting cells of glands in being metamorphosed epithelium-cells of the glandular tubuli or follicles.

2d. From these formative vesicles, the spermatozoa are produced in one of the three following modes: *a*, by the conversion of the cell-membrane and nucleus of the formative vesicle itself into the spermatozoon, a method in which the change is the least possible, and which is only found among the nematoid worms; *b*, by the metamorphosis of the nucleus of the formative vesicle into the spermatozoon, a method which is much more common, especially among the lower animals, in many of which (as chilopoda, acarina, and entomostraca) the spermatozoa remain as solid massive corpuscles, resembling the nuclei from which they sprang, instead of having the filiform shape of ordinary spermatozoa; *c*, by the endogenous development of cells originating in the nucleus of the parent cavity, each young cell producing a spermatozoon within it. This last method is that which we find in all the higher animals; but its latter part may take place in two ways. The parent-vesicle may burst and set free the young cells, before the latter have begun to form the spermatozoa, which then evidently issue from them. But it frequently happens that the development of the spermatozoa takes place, whilst the cells within which they are formed are yet within the parent-vesicle; and the walls of these cells give way, so that the spermatozoa come to be associated together in bundles within the parent-cells, as formerly described by Wagner, and are finally set free by their rupture. The authors of the 'Cyclopædia' regard the spermatozoa as the essential constituent of the semen.†

§ IX.—*Embryology and the Fœtus.*

56. *Blood-corpuscles*—The first corpuscles seen in the blood of the frog's ova are embryonic cells; nuclei of these cells can be found in the hollow vessel, which represents the embryo-heart. These corpuscles pass through a series of changes until they at last assume the form of the perfect blood-corpuscle. The embryonic cell dissolves at its border, its larger granules collect towards the centre; it becomes flat and oval, and takes a yellow hue; its granular contents gradually disappear, until at last nothing remains but a little mass

* Müller's Archiv, p. 415, 1847. † Part XXXIV.

in the centre, which soon contracts into a well-defined nucleus; the cell assumes a darker colour, and then resembles in all its characters the blood-corpuscles of the perfect animal. Here we see the membrane of the embryonic cell persistent; in the formation of muscular fibre, part of it is most probably converted into myolemma.

Dr. Cramer thus describes the development of the lymph-corpuscle into the blood-corpuscle. The lymph-corpuscle consists of a mass of granules, closely enveloped by a fine membrane; these granules are gradually diffused, and the corpuscle then appears as a pale round cell, containing the loosened mass of granules. This cell slowly enlarges, and becomes oval, its granules lie looser, and are less defined, and it takes a yellow hue; next the cell is flattened, its loose contents combine into a firm oval nucleus, yet still dotted with fine points, and its colour deepens; then the border of the nucleus becomes more distinct, and the points disappear; the colour takes its full shade, and so renders the pale nucleus less distinct; and thus the blood-corpuscle is formed. As the blood-corpuscle degenerates, its colour fades, and its nucleus again becomes more distinct; its borders fall in, and its walls appear folded and torn, and gradually to pass away; but still the nucleus remains firm, whether it ultimately falls out, and enters the circulation, it is difficult to say, so closely does it resemble a lymph-corpuscle.*

57. *Blood-corpuscles of the Human Embryo.*—Mr. Paget has examined the blood of the fœtus at four weeks old, which is the earliest period at which it has been submitted to microscopic inquiry. The great majority of the red corpuscles presented a circular outline, and as they rolled over appeared spheroidal and vesicular. Their surfaces were smooth, and as they dried, portions of their edges were incurved and folded towards their centres. They were apparently more deep-coloured than in adult blood. The nuclei were circular, with well-defined dark outlines, and darkly nebulous, as if granulated. All the corpuscles were nucleated; some contained two nuclei, and were ovoidal, and larger than the rest.

The measurements of the spheroidal corpuscles were from 1-2100 to 1-2800th of an inch in diameter; that of the nuclei from 1-3700 to 1-4500th. Of the bi-nucleated cells the measurement were 1-1500 by 1-2300th of an inch.†

58. *Muscular Fibre.*—The first appearance of muscular fibre is in the form of a fine sheath filled with yelk-corpuscles; the sheath itself would not be visible, did not its contents leave here and there clear intervals, where it is somewhat contracted. These intervals occur at equal distances, and the masses which lie between them correspond to the size and contents of a cell (embryonic?), so that the mode of origin, as described by Schwann, is hereby confirmed. The yelk-cells gradually disappear, and their place is occupied by striped fibrillæ; it is impossible to follow out the formation of these, concealed as they are by the dark masses of yelk-corpuscles; the change does not take place at the same time throughout the whole fibre, for it may consist at one end of striped fibrillæ, and at the other of yelk-corpuscles. Whenever the fibre is fully formed, its power of contraction exists; and the presence of nerves shows that animal motion is alone produced by the combined action of nerve and muscle.

All that Dr. Cramer could learn concerning the mode of formation of nerves was, that they were developed before the muscles, and were formed out of embryonic cells.‡

59. *Existence of Iron and Phosphate of Lime in the Egg.*—Mr. Taylor has

* Müller's Archiv, p. 63, 1848. † Medical Gazette, Feb. 2, 1849.
‡ Müller's Archiv, p. 63, 1848.

lately examined the question as to the existence of iron and phosphate of lime in the egg. He has distinctly ascertained the presence of iron both in the white and in the yelk of newly-laid eggs, probably existing in each in equal proportions; phosphate of lime also he shows to be a large constituent. He concludes that these bodies exist in some unknown state of combination; the shell of the egg contains no iron, and but very slight traces of phosphate of lime.*

60. *Development of the Ovum.*—Dr. Melville's researches compel him to doubt the accuracy of many of Dr. Barry's observations on the development of the ovum; but they confirm those of Bischoff.

All that can be said of the germinal vesicle is, that it disappears before the ovum leaves the ovary, after impregnation; the fissuring of the yelk is produced by the primitive yelk being resolved into smaller and smaller segments, the alternate segments becoming cells, from which the new being is formed, and not to a cell-development proceeding from the germinal spot as a centre. The two cells, which Barry states to originate from the enlarged germinal spot, are only the halves of the primitive yelk. The yelk is such as Bischoff has described it; it is not composed (after impregnation) of distinct and separable cells. The spermatozoa do not enter the zona pellucida by a distinct orifice. The globules described by Bischoff as floating in the fluid surrounding the yelk before and after fissuring has commenced, Dr. Melville believes arise from the solution and vital attraction inwardly by the ovum of certain spermatozoa, and that the final cause of the fissuring has been rightly assigned by Barry. The albumen is a new formation received in the upper part of the fallopian tube; between its structureless layers numerous spermatozoa are interstratified. Dr. Melville could not see the rotation of the ovum described by Bischoff.†

61. *Pulmonary Tissue of the Fœtus.*—M. Natalis Guillot has found that the pulmonary tissue of the fœtus contains a much larger proportion of fatty matter before than it does after birth; and that the fat begins to diminish when respiration commences, being, before that function is brought into play, as 12, 15, and 18 to 100 parts of the tissue, but afterwards only as 6 to 100 parts. In all affections of the chest, where respiration is obstructed, the fatty matters increase.‡

62. *Pulse of Infants.*—Dr. Farge has made numerous researches respecting the pulse of infants. The pulse of the fœtus beats 130 to 140 per minute; immediately after birth the pulse is not more than 72 to 94, but it quickly rises to 140 and 200, and then gradually subsides to 80 and 112, but is very variable, from the natural excitability of the child. During the first month the pulse increases to 125 and 130, and goes on increasing up to the third month, being then 130 to 140; from this period it gradually decreases to the age of puberty, when it remains about 80.§

63. *Composition of Fœtal Urine.*—Dr. M'Clintock has performed several careful analyses of the urine secreted by the fœtus, from which he has elicited the fact that before birth the urine differs from that secreted after birth, in being highly albuminous and destitute of urea. It thus appears that a condition which after birth is pathological, before birth is a strictly physiological state.‖

* Guy's Hospital Reports, vol. vi, pt. 1.
† Edin. Monthly Journal, Dec. 1847.
‡ Comptes Rendus, July 12, 1847.
§ Archives Générales, Band xvii, p. 124.
‖ Dublin Journal, Feb. 1849.

§ X.—*Miscellanea.*

64. *Vital Affinities.*—Dr. Alison* continues to review the facts relative to the formation of oils and albuminous compounds, with the view of illustrating the modifications produced by vitality in chemical affinities. The formation of fat or oil in vegetables seems to be affected simply by the separation of oxygen from starch; but in those animals, in which no oxygen is evolved, and yet oils are formed, the formation is brought about probably by an affinity of the greater part of the carbon and hydrogen for the small part of oxygen; while the lesser part of the carbon and hydrogen passes off as carbonic acid and water, with the greater part of the oxygen; and thus does vital affinity play its part in the formation of oils. Dr. Alison, however, admits that simple chemical action may produce oily matters, as in the formation of adipocire from fibrin; and the fact of exercise restraining the formation of fat, he thinks important, as indicating, that vital affinities do not supersede, but are merely added to, the usual chemical relations of the elements subject to them.

Dr. Alison holds that albumen may be formed in the body, and chiefly from amylaceous matters; but admits that this can only be to a small extent, and that the general distinctions of azotized and non-azotized aliments, and of the frame being protected by the latter from the action of oxygen, &c., are quite consonant with clinical observations. Gelatine, he considers, is certainly formed by the separation of carbon and hydrogen from the albumen by the aid of oxygen derived from the air; but it may be also formed by the action of oxygen on the elements of starch and ammonia.

Dr. Alison gives this statement respecting nutritive absorption and excretion: at the extremities of the capillaries in the more perfect animals, carbon, hydrogen, nitrogen, and oxygen are continually forming two sets of compounds; certain portions of these elements recently introduced as aliment, either separating as organic compounds, or uniting to form such compounds, attaching to themselves saline and earthy particles, taking the form of cells and fibres, and building up the organized frame; while other portions, which have already been some time in the body, reject these new matters, unite with oxygen from the air, and continually fall away into compounds, which are destined to excretion, and poisonous, if retained in the system. From these and like facts, Dr. Alison draws the proof of the existence of that principle, the modification of chemical combinations, by the contact of living structures, to which the term vital affinity is applied; like all other vital actions, vital affinities have the distinctive peculiarity of being transient in duration.†

65. *Action of Light on the Iris.*—It results from the researches of M. Brown Séquard, that the nervous and muscular fibres of the iris in the batrachia and fishes may be *directly* excited to action. When the eye of an eel or a frog is extracted from the orbit, and completely denuded, and then exposed to the light, the pupil at once contracts, and again dilates, if the eye is placed in a dark place; the contractions and dilatations may be repeated from 50 to 100 times in an hour by the same eye. When the light is allowed to act only on the retina, the iris remains unmoved; but it contracts when the light acts only upon it. In the uninjured eye of living batrachians, the iris is moved both by the action of light on its own tissue and by its action on the retina and on the nervous centres. The pupil of the eye of a mammifer, or a bird,

* Proceedings of the Royal Society of Edinburgh, 1847.

† Edin. Monthly Journal, Dec. 1847.

extracted from its orbit, dilates or contracts by change of temperature, according to its condition of dilatation or contraction previous to the experiment.*

66. *Periosteum.*—The clavicle has been lately extirpated by M. Blandin, its periosteum being left behind; eight months afterwards the clavicle was formed anew, and found almost perfect, and the arm could be used as well as before. The case is quoted as illustrating the theory of Flourens and Syme, that bone can be formed by periosteum; but Goodsir has clearly shown that it is impossible to strip the periosteum off bones without leaving bony spiculæ behind, and that from these spiculæ new bone springs.†

67. *Entozoa.*—M. Blanchard has investigated the habits and mode of development of the Fasciola hepatica, an entozoon, very common in the livers of the ox, sheep, &c. In all his researches, M. Blanchard never found any but *adult animals* in these affected livers. In spring, myriads of their ova could be detected in the biliary canals, and ductus choledochus, and throughout the whole length of the intestinal canal; the nearer these ova approached the extremity of the intestines, the more fully developed did they appear. M. Blanchard considers it evident that the ova undergo incubation in their progress, are cast out of the body with the fæces, and again taken into the body with the food in a farther stage of development; on this latter point, however, he had no data for speaking decisively. In the batrachiæ, whose intestines swarm with entozoa, M. Blanchard has never found any but adult, or very nearly adult, trematodes. He considers it very probable that, in the human subject, the eggs of tænia, &c., are swallowed with the food; in some countries tænia seem endemic. M. Blanchard has never seen worms in the fœtus—their existence is, however, placed beyond all doubt by M. Grätzer.‡

* Archives Générales, p. 406, 1847. † Gaz. Méd. de Paris, p. 261, 1847.
‡ Comptes Rendus, p. 355, 1848.

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2. Thoughts on Pulmonary Consumption. By Dr. Madden. 8vo, pp. 220.
3. On Infantile Laryngismus. By Dr. Reid. 8vo, pp. 204.
4. On the Cerebral Affections of Infancy and Childhood, &c. By Dr. Valentine Duke. 8vo, pp. 96.
5. Pathology of the Human Eye. By John Dalrymple, Esq. Imperial 4to, Fasciculus I.
6. Reports of Asiatic Cholera in the Madras Army from 1828 to 1844. By Samuel Rogers, Esq. 8vo, pp. 267.
7. The Cholera at Malta in 1837. By Dr. Stilon, translated by Dr. Seth Watson.

*** *These are two of the best and most useful of the swarm of books and pamphlets on Cholera which have recently appeared.*

8. Sierra Leone. By R. Clarke, M.R.C.S., Edinburgh.

*** *A description of the manners and customs of the liberated Africans, interspersed with many valuable remarks on the climate and diseases of the country.*

9. Code of Safety; or Causes, Effects, and Aids preventive and curative of other Epidemics, as well as of Asiatic Cholera. By G. Collier, M.D. 8vo, pp. 96.
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11. Obstetrics, the Science and Art. By Charles Meigs, M.D., Philadelphia. 8vo, pp. 684.
12. A Physician's Holiday. By Dr. Forbes.
13. Origin, Spread, and Decline of the Epidemic Fevers of Sierra Leone. By Alexander Brydon, M.D. pp. 174.
14. Elements of Chemistry, Theoretical and Practical. By Sir Robert Kane, M.D. 2d edit., pp. 1061.

*** *This is one of the most complete treatises on Chemistry extant, and, in the present edition, has been much enlarged and improved; it is also profusely illustrated with woodcuts, which greatly enhance its value as a work of reference.*

15. Elements of Electro-Biology; or the Voltaic Mechanism of Man. By Alfred Smee, F.R.S. 8vo, pp. 164.
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17. Parturition, and the Principles of Obstetrics. By Dr. Tyler Smith. pp. 385.
18. On Healthy and Diseased Structure. By W. Addison, M.D., F.R.S. 8vo, pp. 320.
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2. The London and Provincial Directory. Remarks by Richard Dawson.

*** *One of the numerous modes of puffing employed by the "manly vigour" fraternity.*

3. Cases in Private Practice. By Richard Wardell, M.D.

*** *Many of these have been noticed in former volumes.*

4. The Hunterian Oration. By Cæsar Hawkins, F.R.S.
5. Operation for Artificial Anus. By J. Mason Warren, M.D.
6. Ligature of the Left Subclavian. By the same (see art. 64).
7. Researches on Meteorology. By Dr. Bennett Dowler.
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